SAFETY DATA SHEET

ExxonMobil

Varsol™40 ULC

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Product name : Varsol™40 ULC

UFI : 2XDS-S1EE-V00A-C25M

Product description : Aliphatic, Cycloparaffinic, Aromatic Hydrocarbons

1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended Use : Solvent

Identified uses
Use in agrochemicals - Consumer
Use in agrochemicals - Professional
Distribution of substance
Formulation and (re)packing of substances and mixtures
Functional fluids - Consumer
Functional fluids - Industrial
Functional fluids - Professional
Lubricants - Consumer (high release)
Lubricants - Consumer (Low release)
Lubricants - Industrial
Lubricants - Professional
Lubricants - Professional (Low release)
Manufacture of substance
Use in metal working fluids/rolling oils - Industrial
Use in metal working fluids/rolling oils - Professional
Polymer processing - Industrial
Polymer processing - Professional
Road and construction applications
Use in rubber production and processing
Use as a fuel - Consumer
Use as a fuel - Industrial
Use as a fuel - Professional
Use in cleaning agents - Consumer
Use in cleaning agents - Industrial
Use in cleaning agents - Professional
Use in coatings - Consumer
Use in coatings - Industrial
Use in coatings - Professional
Use in laboratories - Industrial
Use in laboratories - Professional
Use in oil and gas field drilling and production operations
Use in oil and gas field drilling and production operations - Professional
Use in water treatment agents - Industrial
Use in water treatment agents - Professional
Water treatment chemicals - Professional

1.3 Details of the supplier of the safety data sheet

Supplier : ExxonMobil Petroleum & Chemical BV
POLDERDIJKWEG
Antwerpen B-2030 Belgium

Supplier General Contact : + 32 2 239 3111

e-mail address of person responsible for this SDS : SDS-CC@exxonmobil.com

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

SDS Internet Address : www.sds.exxonmobil.com

1.4 Emergency telephone number

National advisory body/ Poison Centre : (+32)70 245 245

24 Hour Emergency Telephone : +32 2 808 32 37 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226
STOT SE 3, H336
STOT RE 1, H372 (central nervous system (CNS))
Asp. Tox. 1, H304
Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H226 - Flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H336 - May cause drowsiness or dizziness.
H372 - Causes damage to organs through prolonged or repeated exposure. (central nervous system (CNS))
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe vapour.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Response : P301 + P331, P310 - IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P312, P340 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Remove person to fresh air and keep comfortable for breathing.
P370 + P378 - In case of fire: Use water fog, foam, dry chemical or carbon dioxide

SECTION 2: Hazards identification

(CO2) to extinguish flames.
P391 - Collect spillage.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Keep cool.
P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Contains : Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%) and Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics

Supplemental label elements : EUH066 - Repeated exposure may cause skin dryness or cracking.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 3, 40

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% by weight	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	REACH #: 01-2119458049-33 EC: 919-446-0 CAS: -	≥60 - ≤70	Flam. Liq. 3, H226 STOT SE 3, H336 STOT RE 1, H372 (central nervous system (CNS)) Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	-	[1]
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	REACH #: 01-2119463258-33 EC: 919-857-5 CAS: -	≥30 - ≤40	Flam. Liq. 3, H226 STOT SE 3, H336 Asp. Tox. 1, H304 EUH066	-	[1]
1,2,4-trimethylbenzene	REACH #: 01-2119472135-42 EC: 202-436-9 CAS: 95-63-6	≤3	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2,	ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]

SECTION 3: Composition/information on ingredients

			H411		
octane and isomers	-	≤0.3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 **See Section 16 for the full text of the H statements declared above.**	M [Acute] = 1 M [Chronic] = 1	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a physical, health or environmental hazard
[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

Nota :

Note: Any entry in the EC# column that begins with the number "9" is a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance. See Section 15 for additional CAS number information for the substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. Get medical attention following exposure or if feeling unwell.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

Specific treatments : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical : Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Incomplete combustion products, Oxides of carbon, Smoke, Fume

5.3 Advice for firefighters

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. Seek the advice of a specialist before using dispersants. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not breathe vapour or mist. Do not swallow. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Static Accumulator : This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c E2	5000 tonnes 200 tonnes	50000 tonnes 500 tonnes

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
1,2,4-trimethylbenzene	**Limit values (Belgium, 12/2023) [Trimethylbenzeen]** TWA 8 hours: 20 ppm. TWA 8 hours: 100 mg/m³. **EU OEL (Europe, 1/2022)** TWA 8 hours: 20 ppm. TWA 8 hours: 100 mg/m³. **ACGIH TLV (United States, 1/2024)** TWA 8 hours: 10 ppm.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Result
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	**DNEL - Workers - Long term - Inhalation** 330 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal** 26 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 71 mg/m³ Effects: Systemic **DNEL - General population - Long term - Oral** 26 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 44 mg/kg bw/day Effects: Systemic
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	**DNEL - Workers - Long term - Inhalation** 871 mg/m³ Effects: Systemic **DNEL - General population - Long term - Dermal** 125 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 208 mg/kg bw/day Effects: Systemic

SECTION 8: Exposure controls/personal protection

DNEL - General population - Long term - Oral
125 mg/kg bw/day
Effects: Systemic

DNEL - General population - Long term - Inhalation
185 mg/m³
Effects: Systemic

PNECs

Not available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 8: Exposure controls/personal protection

European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid. [Clear]

Colour : Colourless.

Odour : Pungent petroleum

Odour threshold : Not available.

pH : Not applicable.

Melting point/freezing point : Not available.

Boiling point or initial boiling point and boiling range : 155 to 194°C (311 to 381.2°F)

Flash point : Closed cup: 42°C (107.6°F) [ASTM D 56]

Evaporation rate : 0.2 (butyl acetate = 1)

Flammability : Flammable liquids - Category 3

Lower and upper explosion limit : Lower: 0.7% [Extrapolated]
Upper: 6%

Vapour pressure : Not available.

Relative vapour density : Not available.

Relative density : 0.794 [Calculated]

Density : 0.794 g/cm³ [15°C (59°F)]

Solubility in water : Negligible

Partition coefficient n-octanol/water (log Pow) : Not applicable.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : 1.007 cSt [40 °C] [ASTM D7042]
1.203 cSt [25 °C] [ASTM D7042]

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

SECTION 10: Stability and reactivity

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials : Reactive or incompatible with the following materials:,oxidising materials,

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Conclusion/Summary

Inhalation : Minimally Toxic. No end point data for material. Based on assessment of the components.

Dermal : Minimally Toxic. No end point data for material. Based on assessment of the components.

Oral : Minimally Toxic. No end point data for material. Based on assessment of the components.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Varsol™40 ULC	N/A	N/A	N/A	>20	N/A
1,2,4-trimethylbenzene	N/A	N/A	N/A	11	N/A

Irritation/Corrosion

Conclusion/Summary

Skin : May dry the skin leading to discomfort and dermatitis. Mildly irritating to skin with prolonged exposure. No end point data for material. Based on assessment of the components.

Eyes : May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.

Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

Skin : Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.

Respiratory : Not expected to be a respiratory sensitizer. Based on assessment of the components.

Mutagenicity

Conclusion/Summary : Not expected to be a germ cell mutagen. No end point data for material. Based on assessment of the components.

Carcinogenicity

Conclusion/Summary : Not expected to cause cancer. No end point data for material. Based on assessment of the components.

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Conclusion/Summary : May cause drowsiness or dizziness. No end point data for material.

SECTION 11: Toxicological information

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
Varsol™40 ULC	Category 1	central nervous system (CNS)

Conclusion/Summary : May cause damage to organs through prolonged or repeated exposure. No end point data for material. Based on assessment of the components.

Aspiration hazard

Product/ingredient name	Result
Varsol™40 ULC	Category 1

Conclusion/Summary : May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material. Data available.

Information on likely routes of exposure : Not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Product : Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1 Toxicity

Conclusion/Summary

Acute toxicity : Toxic to aquatic life.

Chronic toxicity : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Not determined.

12.3 Bioaccumulative potential

Not determined.

12.4 Mobility in soil

Product/ingredient name	logKoc	Koc
1,2,4-trimethylbenzene	2.9	846.864

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Section 12. Ecological information

Regulation (EC) No. 1907/2006 [REACH]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	N/A	N/A	N/A	Yes	N/A	N/A	N/A
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	No	N/A	N/A	No	N/A	N/A	N/A
1,2,4-trimethylbenzene	No	N/A	N/A	No	N/A	N/A	N/A
octane and isomers	No	N/A	N/A	No	N/A	N/A	N/A

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

The European Waste Catalogue (EWC) code is specific to the waste generating process and waste constituents. Determine the EWC according to the criteria provided in the European Waste Catalogue and the hazardous waste list established by Commission Decision 2000/532/EC, as amended.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1993	UN1993	UN1993	UN1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (naphtha (petroleum), hydrodesulphurised heavy, naphtha (petroleum), hydrotreated heavy)	FLAMMABLE LIQUID, N.O.S. (naphtha (petroleum), hydrodesulphurised heavy, naphtha (petroleum), hydrotreated heavy)	FLAMMABLE LIQUID, N.O.S. (naphtha (petroleum), hydrodesulphurised heavy, naphtha (petroleum), hydrotreated heavy)	Flammable liquid, n.o.s. (naphtha (petroleum), hydrodesulphurised heavy, naphtha (petroleum), hydrotreated heavy)
14.3 Transport hazard class(es)	3	3	3	3
Label(s) / Mark(s)				
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Hazard identification number 30
Limited quantity 5 L
Special provisions 274, 601
Tunnel code (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Special provisions 274, 601
N2

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-E, _S-E_
Special provisions 223, 274, 955
Flash point 39 °C C.C.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 60 L. Packaging instructions: 355. Cargo Aircraft Only: 220 L. Packaging instructions: 366. Limited Quantities - Passenger Aircraft: 10 L. Packaging instructions: Y344.
Special provisions A3

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 3, 40

Other EU regulations

Explosive precursors : Not applicable.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c E2

National regulations

Inventory list

Australia inventory (AIIC) : All components are listed or exempted.

Canada inventory (DSL-NDSL) : All components are listed or exempted.

China inventory (IECSC) : All components are listed or exempted.

Japan inventory (CSCL) : All components are listed or exempted.

Japan inventory (Industrial Safety and Health Act) : Not determined.

New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.

Philippines inventory (PICCS) : All components are listed or exempted.

Korea inventory (KECI) : All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are active or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration

SECTION 16: Other information

RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226	On basis of test data
STOT SE 3, H336	Calculation method
STOT RE 1, H372 (central nervous system (CNS))	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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Version : 5.06

Product code : P000001069

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Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in agrochemicals - Professional

List of use descriptors : **Identified use name:** Use in agrochemicals - Professional
Process Category: PROC01, PROC02, PROC04, PROC08a, PROC08b, PROC11, PROC13, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC04, PROC08a, PROC08b, PROC11, PROC13, PROC28
Transfer from/pouring from containers - PROC08a
Dedicated facility - PROC08b
Mixing operations (open systems) - PROC04
Spraying/fogging by manual application - PROC11
Spraying/fogging by machine application - PROC11
Ad hoc manual application via trigger sprays, dipping, etc. - PROC13
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 5.28E-5 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Transfer from/pouring from containers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Dedicated facility

Transfer from/pouring from containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Mixing operations (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Spraying/fogging by manual application

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Spraying/fogging by machine application

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 1%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Ad hoc manual application via trigger sprays, dipping, etc.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Ventilation control measures	:	PROC02 - Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.11a.v2 Release rate Estimated release factor (Water): 5.28E-4 kg/day Estimated release factor (Air): 0.048 kg/day Estimated release factor (Soil): 4.75E-3 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Transfer from/pouring from containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.2

Exposure estimation and reference to its source - Workers: 4: Dedicated facility

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 5: Mixing operations (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.205

Exposure estimation and reference to its source - Workers: 6: Spraying/fogging by manual application

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.181

Exposure estimation and reference to its source - Workers: 7: Spraying/fogging by machine application

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.15

Exposure estimation and reference to its source - Workers: 8: Ad hoc manual application via trigger sprays, dipping, etc.

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.198

Exposure estimation and reference to its source - Workers: 9: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.41

Exposure estimation and reference to its source - Workers: 10: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.292

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Distribution of substance

List of use descriptors : **Identified use name:** Distribution of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Environmental contributing scenarios : **General exposures -** ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Product sampling - PROC03
Laboratory activities - PROC15
Bulk transfers - PROC08b
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 3.4 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.002
Maximum daily site tonnage (kg/day): 170 kg/day
Regional use tonnage (tonnes/year): 1 700 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 20 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater from process (initial release prior to RMM): 0.000001

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: >= 0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater. Treat air emission to provide a typical removal efficiency of: 90 % Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: >= 0 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 93.7 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 170 000 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 93.7 %
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.
Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.
Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/ bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Product sampling

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Laboratory activities

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Bulk transfers

Open systems / Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Drum and small package filling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : ESVOC SPERC 1.1b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 5: Product sampling

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 6: Laboratory activities

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 7: Bulk transfers

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 8: Drum and small package filling

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 9: Equipment cleaning and maintenance

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 10: Storage

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Maximum Risk Characterization Ratios for air emissions: 0.0000039 Maximum Risk Characterisation Ratios for waste water emissions: 0.00096 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Formulation and (re)packing of substances and mixtures

List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15, PROC28
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02

Environmental contributing scenarios : **General exposures -** ERC02

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15, PROC28
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Batch processes at elevated temperatures - PROC03
Process sampling - PROC03, PROC09
Laboratory activities - PROC15
Bulk transfers - PROC08b
Mixing operations (open systems) - PROC05
Transfer from/pouring from containers - PROC08a
Drum/batch transfers - PROC08b
Production of preparation or articles by tabletting, compression, extrusion or pelletisation - PROC14
Drum and small package filling - PROC09
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily amount per site (tonnes/day): <= 7.839 tonnes/day
Annual site tonnage (tonnes/year): <= 2.35E3 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Batch processes at elevated temperatures

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Mixing operations (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Transfer from/pouring from containers

Manual / Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 13: Drum and small package filling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 14: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 2.2.h.v2 Release rate Estimated release factor (Water): 1.568 kg/day Estimated release factor (Air): 78.38 kg/day Estimated release factor (Soil): 0.784 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 5: Batch processes at elevated temperatures

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.133

Exposure estimation and reference to its source - Workers: 6: Process sampling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 7: Laboratory activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.116

Exposure estimation and reference to its source - Workers: 8: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Mixing operations (open systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 10: Transfer from/pouring from containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 11: Drum/batch transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 12: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.263

Exposure estimation and reference to its source - Workers: 13: Drum and small package filling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 14: Equipment cleaning and maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.151

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Industrial

List of use descriptors : **Identified use name:** Functional fluids - Industrial
Process Category: PROC01, PROC02, PROC04, PROC08a, PROC08b, PROC09, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures -** ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC04, PROC08a, PROC08b, PROC09, PROC28
Bulk transfers - PROC01, PROC02
Drum/batch transfers - PROC08b
Filling of articles/equipment - PROC09
Filling of equipment from drums or containers - PROC08a
General exposures (closed systems) - PROC02
General exposures (open systems) - PROC04
Elevated temperature - PROC04
Remanufacture of reject articles - PROC09
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 5 tonnes/day
Annual site tonnage (tonnes/year): <= 100 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Filling of articles/equipment

Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Filling of equipment from drums or containers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Elevated temperature

General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Remanufacture of reject articles

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Equipment cleaning and maintenance

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 7.13a.h.v2 Release rate Estimated release factor (Water): 0.15 kg/day Estimated release factor (Air): 25 kg/day Estimated release factor (Soil): 5 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 5: Filling of articles/equipment

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 6: Filling of equipment from drums or containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 7: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 8: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.345

Exposure estimation and reference to its source - Workers: 9: Elevated temperature

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.265

Exposure estimation and reference to its source - Workers: 10: Remanufacture of reject articles

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 11: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 12: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Professional

List of use descriptors : **Identified use name:** Functional fluids - Professional
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC09, PROC20, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC08a, PROC09, PROC20
Drum/batch transfers - PROC08a
Transfer from/pouring from containers - PROC09
Filling of equipment from drums or containers - PROC09
General exposures (closed systems) - PROC01, PROC02, PROC03
Operation of equipment containing engine oils and similar (closed systems) - PROC20
Operation of equipment containing engine oils and similar - PROC20
Remanufacture of reject articles - PROC09
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Use as functional fluids e.g. cable oils, transfer oils, insulators, refrigerants, hydraulic fluids in closed professional equipment including incidental exposures during maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 5.5E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Transfer from/pouring from containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Filling of equipment from drums or containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	PROC02, PROC03 - Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Operation of equipment containing engine oils and similar (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Operation of equipment containing engine oils and similar

Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Remanufacture of reject articles

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	Release rate Estimated release factor (Water): 0.014 kg/day Estimated release factor (Air): 0.028 kg/day Estimated release factor (Soil): 0.014 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.2

Exposure estimation and reference to its source - Workers: 4: Transfer from/pouring from containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.345

Exposure estimation and reference to its source - Workers: 5: Filling of equipment from drums or containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.345

Exposure estimation and reference to its source - Workers: 6: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.145 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.133

Exposure estimation and reference to its source - Workers: 7: Operation of equipment containing engine oils and similar (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.046

Exposure estimation and reference to its source - Workers: 8: Operation of equipment containing engine oils and similar

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 9: Remanufacture of reject articles

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.398

Exposure estimation and reference to its source - Workers: 10: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.41

Exposure estimation and reference to its source - Workers: 11: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.464

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Lubricants - Industrial

List of use descriptors :
Identified use name: Lubricants - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC07

Environmental contributing scenarios : **General exposures -** ERC04, ERC07

Health Contributing scenarios :
General measures applicable to all activities - PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Bulk transfers - PROC08b
Filling of equipment from drums or containers - PROC08a, PROC08b
Initial factory fill of equipment - PROC09
Operation and lubrication of high energy open equipment - PROC17, PROC18
Rolling, Brushing - PROC10
Treatment of articles by dipping and pouring - PROC13
Spraying - PROC07
Maintenance and machine set up - PROC08b
Elevated temperature - PROC08b
Maintenance of small items - PROC08a, PROC28
Remanufacture of reject articles - PROC09
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 10 tonnes/day
Annual site tonnage (tonnes/year): <= 0.5 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Filling of equipment from drums or containers

Non-dedicated facility / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Initial factory fill of equipment

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Operation and lubrication of high energy open equipment

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Rolling, Brushing

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Treatment of articles by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Maintenance and machine set up

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Elevated temperature

Maintenance and machine set up / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Maintenance of small items

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Remanufacture of reject articles

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 16: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures to control dispersion from source towards the worker	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.6a.h.v2 Release rate Estimated release factor (Water): 0.015 kg/day Estimated release factor (Air): 0.75 kg/day Estimated release factor (Soil): 0.5 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 5: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 6: Filling of equipment from drums or containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.27 Risk Characterisation Ratio (RCR) - PROC08a: combined routes, systemic, long term: 0.2

Exposure estimation and reference to its source - Workers: 7: Initial factory fill of equipment

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 8: Operation and lubrication of high energy open equipment

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC17: combined routes, systemic, long term: 0.41
Risk Characterisation Ratio (RCR) - PROC18: combined routes, systemic, long term: 0.345

Exposure estimation and reference to its source - Workers: 9: Rolling, Brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 10: Treatment of articles by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.265

Exposure estimation and reference to its source - Workers: 11: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.304

Exposure estimation and reference to its source - Workers: 12: Maintenance and machine set up

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 13: Elevated temperature

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.215

Exposure estimation and reference to its source - Workers: 14: Maintenance of small items

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 15: Remanufacture of reject articles

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 16: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Lubricants - Professional

List of use descriptors :
Identified use name: Lubricants - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d, ERC09a, ERC09b

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d, ERC09a, ERC09b

Health Contributing scenarios :
General measures applicable to all activities - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20, PROC28
General exposures (closed systems) - PROC01, PROC02, PROC03
Operation of equipment containing engine oils and similar - PROC20
General exposures (open systems) - PROC04
Bulk transfers - PROC08b
Filling of equipment from drums or containers - PROC08a, PROC08b
Operation and lubrication of high energy open equipment - PROC17
Operation and lubrication of high energy open equipment - PROC17, PROC18
Maintenance and machine set up - PROC08b
Elevated temperature - PROC08b
Maintenance of small items - PROC08a, PROC28
Engine lubricant service - PROC09
Rolling, Brushing - PROC10
Manual applications e.g. brushing, rolling - PROC10
Spraying - PROC11
Manual spraying - PROC11
Treatment by dipping and pouring - PROC13
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 1.92E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Operation of equipment containing engine oils and similar

General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Filling of equipment from drums or containers

Dedicated facility / Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Operation and lubrication of high energy open equipment

Indoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Operation and lubrication of high energy open equipment

Indoor and outdoor use.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Maintenance and machine set up

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Elevated temperature

Maintenance and machine set up / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Maintenance of small items

Non-dedicated facility / Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Engine lubricant service

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 14: Rolling, Brushing

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Manual applications e.g. brushing, rolling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 16: Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 25 %
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 17: Manual spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 18: Treatment by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 19: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.6c.c.v2 Release rate Estimated release factor (Water): 9.62E-3 kg/day Estimated release factor (Air): 0.029 kg/day Estimated release factor (Soil): 9.62E-3 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: Operation of equipment containing engine oils and similar

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.181

Exposure estimation and reference to its source - Workers: 5: General exposures (open systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.265

Exposure estimation and reference to its source - Workers: 6: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 7: Filling of equipment from drums or containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.27
Risk Characterisation Ratio (RCR) - PROC08a: combined routes, systemic, long term: 0.414

Exposure estimation and reference to its source - Workers: 8: Operation and lubrication of high energy open equipment

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.461

Exposure estimation and reference to its source - Workers: 9: Operation and lubrication of high energy open equipment

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC18: combined routes, systemic, long term: 0.226
Risk Characterisation Ratio (RCR) - PROC17: combined routes, systemic, long term: 0.192

Exposure estimation and reference to its source - Workers: 10: Maintenance and machine set up

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 11: Elevated temperature

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 12: Maintenance of small items

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.166

Exposure estimation and reference to its source - Workers: 13: Engine lubricant service

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.526

Exposure estimation and reference to its source - Workers: 14: Rolling, Brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.2, 0.28

Exposure estimation and reference to its source - Workers: 15: Manual applications e.g. brushing, rolling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.161

Exposure estimation and reference to its source - Workers: 16: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.45

Exposure estimation and reference to its source - Workers: 17: Manual spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.594

Exposure estimation and reference to its source - Workers: 18: Treatment by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 19: Storage

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Scaling tool: ECETOC TRA worker v3
Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Lubricants - Professional (Low release)

List of use descriptors :
Identified use name: Lubricants - Professional (Low release)
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios :
General measures applicable to all activities - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20
General exposures (closed systems) - PROC01, PROC02, PROC03
Operation of equipment containing engine oils and similar - PROC20
General exposures (open systems) - PROC04
Bulk transfers - PROC08b
Filling/preparation of equipment from drums or containers. - PROC08a, PROC08b
Operation and lubrication of high energy open equipment - PROC17, PROC18
Maintenance (of larger plant items) and machine set-up. - PROC08b
Maintenance of small items - PROC08a
Engine lubricant service - PROC09
Roller application or brushing of adhesive and other coating - PROC10
Spraying - PROC11
Treatment by dipping and pouring - PROC13
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics :
Predominantly hydrophobic
Substance is complex UVCB.

Amounts used :
Annual site tonnage (tonnes/day): 0.018 tonnes/day
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 1
Maximum daily site tonnage (kg/day): 365 kg/day
Regional use tonnage (tonnes/year): 35 tonnes/year

Frequency and duration of use :
Continuous release
Emission days (days per year): 365 days per year

Environment factors not influenced by risk management :
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure	:	Release fraction to air from process (initial release prior to RMM): 0.01 Release fraction to soil from process (initial release prior to RMM): 0.01 Release fraction to wastewater from process (initial release prior to RMM): 0.01
Technical conditions and measures at process level (source) to prevent release	:	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: >=0 % No secondary wastewater treatment required. Risk from environmental exposure is driven by freshwater. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: >=0 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day Estimated substance removal from wastewater via municipal sewage treatment: 93.7 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 46 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 93.7 %
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.
Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.
Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/ bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Operation of equipment containing engine oils and similar

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: General exposures (open systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Bulk transfers

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Filling/preparation of equipment from drums or containers.

Dedicated facility / Non-dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Operation and lubrication of high energy open equipment

Indoor and outdoor use.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 9: Maintenance (of larger plant items) and machine set-up.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting worker exposure : Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Maintenance of small items

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Technical conditions and measures at process level (source) to prevent release	:	Drain or remove substance from equipment prior to break-in or maintenance.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Engine lubricant service

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 12: Roller application or brushing of adhesive and other coating

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 13: Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 14: Treatment by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.6b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 4: Operation of equipment containing engine oils and similar

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 5: General exposures (open systems)

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 6: Bulk transfers

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 7: Filling/preparation of equipment from drums or containers.

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 8: Operation and lubrication of high energy open equipment

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 9: Maintenance (of larger plant items) and machine set-up.

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 10: Maintenance of small items

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 11: Engine lubricant service

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 12: Roller application or brushing of adhesive and other coating

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 13: Spraying

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 14: Treatment by dipping and pouring

Exposure assessment (human): : The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Maximum Risk Characterization Ratios for air emissions: 0.000026 Maximum Risk Characterisation Ratios for waste water emissions: 0.00097 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Manufacture of substance

List of use descriptors : **Identified use name:** Manufacture of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15, PROC28
Sector of end use: SU03, SU08, SU09, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01

Environmental contributing scenarios : **General exposures -** ERC01

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15, PROC28
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Process sampling - PROC08b, PROC09
Laboratory activities - PROC15
Bulk transfers - PROC08b
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily amount per site (tonnes/day): <= 56.09 tonnes/day
Annual site tonnage (tonnes/year): <= 1.68E4 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Bulk transfers

Open systems / Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : ESVOC SPERC 1.1.m.v2
Release rate
Estimated release factor (Water): 16.82 kg/day
Estimated release factor (Air): 56.09 kg/day
Estimated release factor (Soil): 5.609 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085
Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.265

Exposure estimation and reference to its source - Workers: 5: Process sampling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 6: Laboratory activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.116

Exposure estimation and reference to its source - Workers: 7: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - Closed systems: combined routes, systemic, long term: 0.23
Risk Characterisation Ratio (RCR) - Open systems: combined routes, systemic, long term: 0.753

Exposure estimation and reference to its source - Workers: 8: Equipment cleaning and maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.151

Exposure estimation and reference to its source - Workers: 9: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in metal working fluids/rolling oils - Industrial

List of use descriptors : **Identified use name:** Use in metal working fluids/rolling oils - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC28
General exposures (closed systems) - PROC01, PROC02, PROC03
General exposures (open systems) - PROC04
Bulk transfers - PROC08b
Filling of equipment from drums or containers - PROC05, PROC08b, PROC09
Process sampling - PROC08b
Metal machining operations - PROC17
Treatment of articles by dipping and pouring - PROC13
Spraying - PROC07
Rolling, Brushing - PROC10
Automated metal rolling/forming - PROC02
Semi-automated metal rolling/forming - PROC04, PROC17
Equipment cleaning and maintenance - PROC08a, PROC08b, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 5.206 tonnes/day
Annual site tonnage (tonnes/year): <= 104.1 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Bulk transfers

Dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Filling of equipment from drums or containers

Dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Metal machining operations

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Treatment of articles by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Rolling, Brushing

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Automated metal rolling/forming

Use in contained systems

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 13: Semi-automated metal rolling/forming

Elevated temperature

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Equipment cleaning and maintenance

Dedicated facility / Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : ESVOC SPERC 4.7a.c.v3
Release rate
Estimated release factor (Water): 0.156 kg/day
Estimated release factor (Air): 31.23 kg/day
Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085
Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: General exposures (open systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.135

Exposure estimation and reference to its source - Workers: 5: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 6: Filling of equipment from drums or containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.23
Risk Characterisation Ratio (RCR) - PROC05: combined routes, systemic, long term: 0.23
Risk Characterisation Ratio (RCR) - PROC09: combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 7: Process sampling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 8: Metal machining operations

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.105

Exposure estimation and reference to its source - Workers: 9: Treatment of articles by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.172

Exposure estimation and reference to its source - Workers: 10: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.172

Exposure estimation and reference to its source - Workers: 11: Rolling, Brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.401

Exposure estimation and reference to its source - Workers: 12: Automated metal rolling/forming

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.115

Exposure estimation and reference to its source - Workers: 13: Semi-automated metal rolling/forming

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC17: combined routes, systemic, long term: 0.265
Risk Characterisation Ratio (RCR) - PROC04: combined routes, systemic, long term: 0.139

Exposure estimation and reference to its source - Workers: 14: Equipment cleaning and maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC17: combined routes, systemic, long term: 0.23
Risk Characterisation Ratio (RCR) - PROC04: combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Scaling tool: ECETOC TRA worker v3
Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in metal working fluids/rolling oils - Professional

List of use descriptors : **Identified use name:** Use in metal working fluids/rolling oils - Professional
Process Category: PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC17
General exposures (closed systems) - PROC01, PROC02, PROC03
Bulk transfers - PROC08b
Filling/preparation of equipment from drums or containers. - PROC05, PROC08a, PROC08b, PROC09
Process sampling - PROC08b
Metal machining operations - PROC17
Rolling, Brushing - PROC10
Roller application or brushing of adhesive and other coating - PROC10
Manual applications e.g. brushing, rolling - PROC10
Spraying - PROC11
Sprays - PROC11
Treatment of articles by dipping and pouring - PROC13
Equipment cleaning and maintenance - PROC08a, PROC08b, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/reject articles, and disposal of waste oils.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 1.02E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Handle substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Filling/preparation of equipment from drums or containers.

Dedicated facility / Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Metal machining operations

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 % Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Rolling, Brushing

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Roller application or brushing of adhesive and other coating

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Manual applications e.g. brushing, rolling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Sprays

Spraying

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Treatment of articles by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Equipment cleaning and maintenance

Dedicated facility / Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Non-dedicated facility - Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Dedicated facility - Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers exposure up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.7c.c.v2 Release rate Estimated release factor (Water): 5.1E-3 kg/day Estimated release factor (Air): 0.015kg/day Estimated release factor (Soil): 5.1E-3 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 4: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 5: Filling/preparation of equipment from drums or containers.

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.27 Risk Characterisation Ratio (RCR) - PROC09: combined routes, systemic, long term: 0.205 Risk Characterisation Ratio (RCR) - PROC08a: combined routes, systemic, long term: 0.048 Risk Characterisation Ratio (RCR) - PROC05: combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 6: Process sampling

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 7: Metal machining operations

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.401, 0.56

Exposure estimation and reference to its source - Workers: 8: Rolling, Brushing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Roller application or brushing of adhesive and other coating

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.28

Exposure estimation and reference to its source - Workers: 10: Manual applications e.g. brushing, rolling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.161

Exposure estimation and reference to its source - Workers: 11: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.546

Exposure estimation and reference to its source - Workers: 12: Sprays

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.378

Exposure estimation and reference to its source - Workers: 13: Treatment of articles by dipping and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.205

Exposure estimation and reference to its source - Workers: 14: Equipment cleaning and maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC08a, PROC28: combined routes, systemic, long term: 0.28
Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Scaling tool: ECETOC TRA worker v3
Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Polymer processing - Industrial

List of use descriptors : **Identified use name:** Polymer processing - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC28
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC28
Bulk transfers - PROC01, PROC02, PROC08b
Bulk weighing - PROC01, PROC02
Small scale weighing - PROC09
Additive premixing - PROC03, PROC04, PROC05
Calendering (including Banburys) - PROC06
Production of articles by dipping and pouring - PROC13
Extrusion and masterbatching - PROC14
Injection moulding of articles - PROC14
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Processing of formulated polymers including material transfers, additives handling (e. g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 15.12 tonnes/day
Annual site tonnage (tonnes/year): <= 302.4 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Closed systems / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Bulk weighing

Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Small scale weighing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Additive premixing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Calendering (including Banburys)

Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Production of articles by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Extrusion and masterbatching

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Injection moulding of articles

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 11: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.21a.c.v2 Release rate Estimated release factor (Water): 0 kg/day Estimated release factor (Air): 756 kg/day Estimated release factor (Soil): 0.151 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085 Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 4: Bulk weighing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Exposure estimation and reference to its source - Workers: 5: Small scale weighing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 6: Additive premixing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.093 Risk Characterisation Ratio (RCR) - PROC04: combined routes, systemic, long term: 0.165 Risk Characterisation Ratio (RCR) - PROC05: combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 7: Calendering (including Banburys)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.361

Exposure estimation and reference to its source - Workers: 8: Production of articles by dipping and pouring

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 9: Extrusion and masterbatching

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.263

Exposure estimation and reference to its source - Workers: 10: Injection moulding of articles

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.263

Exposure estimation and reference to its source - Workers: 11: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 12: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Polymer processing - Professional

List of use descriptors : **Identified use name:** Polymer processing - Professional
Process Category: PROC01, PROC02, PROC06, PROC08a, PROC08b, PROC14, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d, ERC09a

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d, ERC09a

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC06, PROC08a, PROC08b, PROC14, PROC28
Bulk transfers (closed systems) - PROC01, PROC02
Material transfers - PROC08b
Injection moulding of articles - PROC06, PROC14
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): 1.54E-3 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers (closed systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Material transfers

Dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Injection moulding of articles

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.21b.v2 Release rate Estimated release factor (Water): 0.015 kg/day Estimated release factor (Air): 1.509 kg/day Estimated release factor (Soil): 0.015 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 4: Material transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.151

Exposure estimation and reference to its source - Workers: 5: Injection moulding of articles

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC06: combined routes, systemic, long term: 0.461 Risk Characterisation Ratio (RCR) - PROC14: combined routes, systemic, long term: 0.223

Exposure estimation and reference to its source - Workers: 6: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 7: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Road and construction applications

List of use descriptors : **Identified use name:** Road and construction applications
Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08d, ERC08f

Environmental contributing scenarios : **General exposures -** ERC08d, ERC08f

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC28
Drum/batch transfers - PROC08a
Material transfers - PROC08b
Small scale weighing - PROC09
Rolling, Brushing - PROC10
Spraying/fogging by manual application - PROC11
Dipping, immersion and pouring - PROC13
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Bulk loading (including marine vessel/barge, rail/road car and IBC loading)

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 1.02E-3 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Drum/batch transfers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Material transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Small scale weighing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Rolling, Brushing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Spraying/fogging by manual application

Machine

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Dipping, immersion and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.15.v3 Release rate Estimated release factor (Water): 0.01 kg/day Estimated release factor (Air): 0.97 kg/day Estimated release factor (Soil): 0.041 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 4: Material transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 5: Small scale weighing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.205

Exposure estimation and reference to its source - Workers: 6: Rolling, Brushing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.366

Exposure estimation and reference to its source - Workers: 7: Spraying/fogging by manual application

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.546

Exposure estimation and reference to its source - Workers: 8: Dipping, immersion and pouring

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 9: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 10: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in rubber production and processing

List of use descriptors : **Identified use name:** Use in rubber production and processing
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC15, PROC28
Sector of end use: SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC06d

Environmental contributing scenarios : **General exposures -** ERC04, ERC06d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC15, PROC28
Material transfers - PROC01, PROC02, PROC08b
Bulk weighing - PROC01, PROC02
Small scale weighing - PROC09
Additive premixing - PROC03, PROC04, PROC05
Calendering (including Banburys) - PROC06
Pressing uncured rubber blanks - PROC14
Tyre build up - PROC07
Vulcanisation - PROC06
Cooling cured articles - PROC06
Production of articles by dipping and pouring - PROC13
Laboratory activities - PROC15
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily amount per site (tonnes/day): <= 1.68 tonnes/day
Annual site tonnage (tonnes/year): <= 33.6 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Material transfers

Closed systems / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Bulk weighing

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Small scale weighing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Additive premixing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Calendering (including Banburys)

Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Pressing uncured rubber blanks

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Tyre build up

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Vulcanisation

Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Cooling cured articles

Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Production of articles by dipping and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 14: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.19a.c.v3 Release rate Estimated release factor (Water): 0.504 kg/day Estimated release factor (Air): 16.8 kg/day Estimated release factor (Soil): 0.168 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Material transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085
Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 4: Bulk weighing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Exposure estimation and reference to its source - Workers: 5: Small scale weighing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 6: Additive premixing

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC09: combined routes, systemic, long term: 0.093
Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.165
Risk Characterisation Ratio (RCR) - PROC05: combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 7: Calendering (including Banburys)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 8: Pressing uncured rubber blanks

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.102

Exposure estimation and reference to its source - Workers: 9: Tyre build up

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.202

Exposure estimation and reference to its source - Workers: 10: Vulcanisation

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 11: Cooling cured articles

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 12: Production of articles by dipping and pouring

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 13: Laboratory activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.116

Exposure estimation and reference to its source - Workers: 14: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.151

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Industrial

List of use descriptors : **Identified use name:** Use as a fuel - Industrial
Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures -** ERC07

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
General exposures (closed systems) - PROC01, PROC02
Use as a fuel - PROC16
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 5 tonnes/day
Annual site tonnage (tonnes/year): <= 100 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Use as a fuel

Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 7.12a.b.v3 Release rate Estimated release factor (Water): 0.05 kg/day Estimated release factor (Air): 1.25 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 5: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 6: Use as a fuel

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.116

Exposure estimation and reference to its source - Workers: 7: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 8: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Professional

List of use descriptors : **Identified use name:** Use as a fuel - Professional
Process Category: PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC08a, PROC08b, PROC16, PROC28
Bulk transfers - PROC08b
Drum/batch transfers - PROC08b
Refuelling - PROC08b
General exposures (closed systems) - PROC01, PROC02
Use as a fuel - PROC16
Equipment maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 5.5E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.
Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Refuelling

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.
Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Use as a fuel

Closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.12b.v3 Release rate Estimated release factor (Water): 5.5E-6 kg/day Estimated release factor (Air): 5.5E-5 kg/day Estimated release factor (Soil): 5.5E-6 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 5: Refuelling

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 6: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 7: Use as a fuel

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.036

Exposure estimation and reference to its source - Workers: 8: Equipment maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Industrial

List of use descriptors : **Identified use name:** Use in cleaning agents - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC28
Bulk transfers - PROC08a, PROC08b
Automated process with (semi) closed systems - PROC02, PROC03
Application of cleaning products in closed systems - PROC02
Filling of equipment from drums or containers - PROC08b
Batch processes at elevated temperatures - PROC04
Degreasing small objects in cleaning station - PROC13
Cleaning with low-pressure washers - PROC10
Cleaning with high pressure washers - PROC07
Cleaning - PROC10
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 13.7 tonnes/day
Annual site tonnage (tonnes/year): <= 1.37E3 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)

Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)

Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Non-dedicated facility / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	PROC08a - Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 % PROC08b - Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Automated process with (semi) closed systems

Use in contained systems / Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Application of cleaning products in closed systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Filling of equipment from drums or containers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Batch processes at elevated temperatures

Open systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 25 %
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Degreasing small objects in cleaning station

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Cleaning with low-pressure washers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Cleaning with high pressure washers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Cleaning

Manual / Surface cleaning / No spraying

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.4a.c.v3 Release rate Estimated release factor (Water): 0.041 kg/day Estimated release factor (Air): 4.11E3 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC08a: combined routes, systemic, long term: 0.23 Risk Characterisation Ratio (RCR) - PROC08b: combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 4: Automated process with (semi) closed systems

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165 Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.232

Exposure estimation and reference to its source - Workers: 5: Application of cleaning products in closed systems

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 6: Filling of equipment from drums or containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 7: Batch processes at elevated temperatures

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.398

Exposure estimation and reference to its source - Workers: 8: Degreasing small objects in cleaning station

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Cleaning with low-pressure washers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.56

Exposure estimation and reference to its source - Workers: 10: Cleaning with high pressure washers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.381

Exposure estimation and reference to its source - Workers: 11: Cleaning

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.56

Exposure estimation and reference to its source - Workers: 12: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 13: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Professional

List of use descriptors : **Identified use name:** Use in cleaning agents - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC19
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC19
Filling of equipment from drums or containers - PROC08a
Filling/preparation of equipment from drums or containers. - PROC08b
Automated process with (semi) closed systems - PROC02
Automated process with (semi) closed systems - PROC03
Semi-automated process. (e.g. Semi-automatic application of floor care and maintenance products) - PROC04
Dipping, immersion and pouring - PROC13
Cleaning with low-pressure washers - PROC10
Cleaning with high pressure washers - PROC11
Cleaning with high pressure washers - PROC11
Cleaning - PROC10
Ad hoc manual application via trigger sprays, dipping, etc. - PROC10
Ad hoc manual application via trigger sprays, dipping, etc. - PROC10
Surface cleaning - PROC11
Rolling, Brushing - PROC11
Batch process - PROC04
Manual activities involving hand contact - PROC19
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 1.89E-3 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Filling of equipment from drums or containers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Filling/preparation of equipment from drums or containers.

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 25 %
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Automated process with (semi) closed systems

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Automated process with (semi) closed systems

Use in contained systems / Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Semi-automated process. (e.g. Semi-automatic application of floor care and maintenance products)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Dipping, immersion and pouring

Manual / Surface cleaning

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Cleaning with low-pressure washers

Rolling, Brushing / No spraying

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Cleaning with high pressure washers

Spraying / Indoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 1%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Cleaning with high pressure washers

Spraying / Outdoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 1%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Cleaning

Manual spraying / Surface cleaning

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Ad hoc manual application via trigger sprays, dipping, etc.

Rolling, Brushing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Ad hoc manual application via trigger sprays, dipping, etc.

Rolling, Brushing

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Surface cleaning

Manual / Spraying

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 16: Rolling, Brushing

Ad hoc manual application via trigger sprays, dipping, etc.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 17: Batch process

Open systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 18: Manual activities involving hand contact

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 19: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.4b.v3 Release rate Estimated release factor (Water): 1.89E-6 kg/day Estimated release factor (Air): 0.038 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Filling of equipment from drums or containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.198

Exposure estimation and reference to its source - Workers: 4: Filling/preparation of equipment from drums or containers.

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.114

Exposure estimation and reference to its source - Workers: 5: Automated process with (semi) closed systems

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.345

Exposure estimation and reference to its source - Workers: 6: Automated process with (semi) closed systems

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.229

Exposure estimation and reference to its source - Workers: 7: Semi-automated process. (e.g. Semi-automatic application of floor care and maintenance products)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.153

Exposure estimation and reference to its source - Workers: 8: Dipping, immersion and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.087

Exposure estimation and reference to its source - Workers: 9: Cleaning with low-pressure washers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.172

Exposure estimation and reference to its source - Workers: 10: Cleaning with high pressure washers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.103

Exposure estimation and reference to its source - Workers: 11: Cleaning with high pressure washers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.103

Exposure estimation and reference to its source - Workers: 12: Cleaning

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.172

Exposure estimation and reference to its source - Workers: 13: Ad hoc manual application via trigger sprays, dipping, etc.

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.246

Exposure estimation and reference to its source - Workers: 14: Ad hoc manual application via trigger sprays, dipping, etc.

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.119

Exposure estimation and reference to its source - Workers: 15: Surface cleaning

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.145

Exposure estimation and reference to its source - Workers: 16: Rolling, Brushing

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.145

Exposure estimation and reference to its source - Workers: 17: Batch process

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.153

Exposure estimation and reference to its source - Workers: 18: Manual activities involving hand contact

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.153

Exposure estimation and reference to its source - Workers: 19: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Industrial

List of use descriptors : **Identified use name:** Use in coatings - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC15, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC15, PROC28
General exposures (closed systems) - PROC01, PROC02
Film formation - force drying, stoving and other technologies - PROC02
Film formation - air drying - PROC04
Mixing operations - PROC03
Preparation of material for application - PROC05
Spraying (automatic/robotic) - PROC07
Spraying - PROC07
Manual - PROC07
Material transfers - PROC08a
Material transfers - PROC08b
Roller, spreader, flow application - PROC10
Roller, spreader, flow application - PROC10
Dipping, immersion and pouring - PROC13
Laboratory activities - PROC15
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01
Drum/batch transfers - PROC09
Production of preparation or articles by tabletting, compression, extrusion or pelletisation - PROC14

Processes and activities covered by the exposure scenario : Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 42.88 tonnes/day
Annual site tonnage (tonnes/year): <= 4.29E3 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant	:	Sewage treatment plant used. Assumed domestic sewage treatment plant flow (m³/day): >= 2E3 m³/day
Conditions and measures related to external treatment of waste for disposal	:	Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

With sample collection / Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Film formation - force drying, stoving and other technologies

Use in contained systems / Elevated temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Film formation - air drying

Open systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Mixing operations

Use in contained batch processes / Batch process

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Preparation of material for application

Mixing operations (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Spraying (automatic/robotic)

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Spraying

Manual

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Manual

Spraying

Product characteristics : Spray

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 4 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure : Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.
Ensure regular inspection, cleaning and maintenance of equipment and machines.
Clear spills immediately.
Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Material transfers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Material transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 95 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Roller, spreader, flow application

Manual

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Roller, spreader, flow application

Automated task

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Dipping, immersion and pouring

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 16: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 17: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 18: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 19: Drum/batch transfers

Material transfers / Transfer from/pouring from containers / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 20: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 4.3a.c.v2 Release rate Estimated release factor (Water): 3.002 kg/day Estimated release factor (Air): 4.2E3 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Exposure estimation and reference to its source - Workers: 4: Film formation - force drying, stoving and other technologies

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.115

Exposure estimation and reference to its source - Workers: 5: Film formation - air drying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.105

Exposure estimation and reference to its source - Workers: 6: Mixing operations

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.053

Exposure estimation and reference to its source - Workers: 7: Preparation of material for application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 8: Spraying (automatic/robotic)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.583

Exposure estimation and reference to its source - Workers: 9: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.351

Exposure estimation and reference to its source - Workers: 10: Manual

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.271

Exposure estimation and reference to its source - Workers: 11: Material transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.43

Exposure estimation and reference to its source - Workers: 12: Material transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 13: Roller, spreader, flow application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.365

Exposure estimation and reference to its source - Workers: 14: Roller, spreader, flow application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.361

Exposure estimation and reference to its source - Workers: 15: Dipping, immersion and pouring

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 16: Laboratory activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 17: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 18: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Exposure estimation and reference to its source - Workers: 19: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 20: Production of preparation or articles by tabletting, compression, extrusion or pelletisation

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.132

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Professional

List of use descriptors :
Identified use name: Use in coatings - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios :
General exposures - ERC08a, ERC08d

Health Contributing scenarios :
General measures applicable to all activities - PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19, PROC28
General exposures (closed systems) - PROC01, PROC02
Filling of equipment from drums or containers - PROC02
Preparation of material for application - PROC03
General exposures - PROC04
Preparation of material for application (Indoor) - PROC05
Preparation of material for application (Outdoor) - PROC05
Material transfers - PROC08a
Material transfers - PROC08b
Roller, spreader, flow application - PROC10
Roller, spreader, flow application - PROC10
Spraying - PROC11
Manual spraying - PROC11
Dipping, immersion and pouring - PROC13
Dipping, immersion and pouring - PROC13
Laboratory activities - PROC15
Manual activities involving hand contact - PROC19
Hand application - finger paints, pastels, adhesives - PROC19
Hand application - fingerpaints, pastels, adhesives - PROC19
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used	:	Fraction of EU tonnage used in region: 10 % Daily local widespread use amount: (tonnes/day): 9.29E-3 tonnes/day
Conditions and measures related to municipal sewage treatment plant	:	Sewage treatment plant used.
Conditions and measures related to external treatment of waste for disposal	:	Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: General exposures (closed systems)

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Filling of equipment from drums or containers

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: Preparation of material for application

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: General exposures

Semi-closed system

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Preparation of material for application (Indoor)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Preparation of material for application (Outdoor)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Material transfers

Drum/batch transfers / Non-dedicated facility / Indoor and outdoor use.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Indoor use - Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 10: Material transfers

Drum/batch transfers / Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: Roller, spreader, flow application

Indoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 12: Roller, spreader, flow application

Outdoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: Spraying

Manual / Indoor use

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Manual spraying

Indoor and outdoor use.

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Indoor use - Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Dipping, immersion and pouring

Indoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 25%.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 16: Dipping, immersion and pouring

Outdoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 17: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 18: Manual activities involving hand contact

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 19: Hand application - finger paints, pastels, adhesives

Indoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 20: Hand application - fingerpaints, pastels, adhesives

Outdoor use

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 5%.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 21: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 22: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.3b.v2 Release rate Estimated release factor (Water): 0.093 kg/day Estimated release factor (Air): 9.104 kg/day Estimated release factor (Soil): 0.093 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01
Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.185

Exposure estimation and reference to its source - Workers: 4: Filling of equipment from drums or containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.145

Exposure estimation and reference to its source - Workers: 5: Preparation of material for application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.083

Exposure estimation and reference to its source - Workers: 6: General exposures

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.146

Exposure estimation and reference to its source - Workers: 7: Preparation of material for application (Indoor)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.162

Exposure estimation and reference to its source - Workers: 8: Preparation of material for application (Outdoor)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.162

Exposure estimation and reference to its source - Workers: 9: Material transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - Indoor use: combined routes, systemic, long term: 0.146
Risk Characterisation Ratio (RCR) - Outdoor use: combined routes, systemic, long term: 0.305

Exposure estimation and reference to its source - Workers: 10: Material transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 11: Roller, spreader, flow application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.146

Exposure estimation and reference to its source - Workers: 12: Roller, spreader, flow application

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.162

Exposure estimation and reference to its source - Workers: 13: Spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.426

Exposure estimation and reference to its source - Workers: 14: Manual spraying

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.145

Exposure estimation and reference to its source - Workers: 15: Dipping, immersion and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.279

Exposure estimation and reference to its source - Workers: 16: Dipping, immersion and pouring

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.123

Exposure estimation and reference to its source - Workers: 17: Laboratory activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 18: Manual activities involving hand contact

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.083

Exposure estimation and reference to its source - Workers: 19: Hand application - finger paints, pastels, adhesives

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.083

Exposure estimation and reference to its source - Workers: 20: Hand application - fingerpaints, pastels, adhesives

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.083

Exposure estimation and reference to its source - Workers: 21: Equipment cleaning and maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.246

Exposure estimation and reference to its source - Workers: 22: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in laboratories - Industrial

List of use descriptors : **Identified use name:** Use in laboratories - Industrial
Process Category: PROC15
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC15
Laboratory activities - PROC15
Use in laboratories - PROC15

Processes and activities covered by the exposure scenario : Use of the substance within laboratory settings, including material transfers and equipment cleaning

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 5E-4 tonnes/day
Annual site tonnage (tonnes/year): <= 0.01 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Use in laboratories

Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	Release rate Estimated release factor (Water): 0.01 kg/day Estimated release factor (Air): 0.013 kg/day Estimated release factor (Soil): 5E-5 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Laboratory activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Exposure estimation and reference to its source - Workers: 4: Use in laboratories

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.036

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in laboratories - Professional

List of use descriptors : **Identified use name:** Use in laboratories - Professional
Process Category: PROC15
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a

Environmental contributing scenarios : **General exposures -** ERC08a

Health Contributing scenarios : **General measures applicable to all activities -** PROC15
Laboratory activities - PROC15
Use in laboratories - PROC15

Processes and activities covered by the exposure scenario : Use of small quantities within laboratory settings, including material transfers and equipment cleaning

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 5.5E-8 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Laboratory activities

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Use in laboratories

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.17.v2 Release rate Estimated release factor (Water): 2.75E-5kg/day Estimated release factor (Air): 2.75E-5kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Laboratory activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.056

Exposure estimation and reference to its source - Workers: 4: Use in laboratories

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.156

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in oil and gas field drilling and production operations

List of use descriptors : **Identified use name:** Use in oil and gas field drilling and production operations
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC28
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC28
Bulk transfers - PROC08b
Filling of equipment from drums or containers - PROC08b
Drilling mud (re-)formulation; Use in contained batch processes - PROC03
Drill floor operations - PROC04
Operation of solids filtering equipment; Elevated Temperature - PROC04
Cleaning of solids filtering equipment; Non-dedicated facility - PROC08a
Treatment and disposal of filtered solids - PROC03
Process sampling - PROC03, PROC09
General exposures (closed systems) - PROC01
Pouring from small containers - PROC08a
General exposures (open systems) - PROC04
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 0.75 tonnes/day
Annual site tonnage (tonnes/year): <= 15 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Filling of equipment from drums or containers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Drilling mud (re-)formulation; Use in contained batch processes

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Drill floor operations

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Operation of solids filtering equipment; Elevated Temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Cleaning of solids filtering equipment; Non-dedicated facility

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Treatment and disposal of filtered solids

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 12: Pouring from small containers

Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	Release rate Estimated release factor (Water): 7.5 kg/day Estimated release factor (Air): 3.75 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.135

Exposure estimation and reference to its source - Workers: 4: Filling of equipment from drums or containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.135

Exposure estimation and reference to its source - Workers: 5: Drilling mud (re-)formulation; Use in contained batch processes

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 6: Drill floor operations

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.102

Exposure estimation and reference to its source - Workers: 7: Operation of solids filtering equipment; Elevated Temperature

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.526

Exposure estimation and reference to its source - Workers: 8: Cleaning of solids filtering equipment; Non-dedicated facility

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 9: Treatment and disposal of filtered solids

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 10: Process sampling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 11: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Exposure estimation and reference to its source - Workers: 12: Pouring from small containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 13: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.135

Exposure estimation and reference to its source - Workers: 14: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.151

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.085

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in oil and gas field drilling and production operations - Professional

List of use descriptors : **Identified use name:** Use in oil and gas field drilling and production operations - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08d

Environmental contributing scenarios : **General exposures -** ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC28
Bulk transfers - PROC08b
Filling of equipment from drums or containers - PROC08b
Drilling mud (re-)formulation; Use in contained batch processes - PROC03
Drill floor operations - PROC04
Operation of solids filtering equipment; Elevated Temperature - PROC04
Cleaning of solids filtering equipment; Non-dedicated facility - PROC08a
Treatment and disposal of filtered solids - PROC03
Process sampling - PROC03, PROC09
General exposures (closed systems) - PROC01
Pouring from small containers - PROC08a
General exposures (open systems) - PROC04
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01, PROC02

Processes and activities covered by the exposure scenario : Oil field well drilling operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 8.25E-5 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: Filling of equipment from drums or containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: Drilling mud (re-)formulation; Use in contained batch processes

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Drill floor operations

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Operation of solids filtering equipment; Elevated Temperature

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 4 h/day
Other operational conditions affecting worker exposure	:	Operation is carried out at elevated temperature (> 20°C above ambient temperature)
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.
Respiratory protection	:	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Cleaning of solids filtering equipment; Non-dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Treatment and disposal of filtered solids

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 10: Process sampling

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure. Outdoor use

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 11: General exposures (closed systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 12: Pouring from small containers

Non-dedicated facility

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Ventilation control measures : Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 13: General exposures (open systems)

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers use up to 8 h/day

Other operational conditions affecting worker exposure : Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Personal protection : Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 14: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 15: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	Release rate Estimated release factor (Water): 8.25E-3 kg/day Estimated release factor (Air): 4.12E-4 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 4: Filling of equipment from drums or containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.33

Exposure estimation and reference to its source - Workers: 5: Drilling mud (re-)formulation; Use in contained batch processes

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 6: Drill floor operations

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.205

Exposure estimation and reference to its source - Workers: 7: Operation of solids filtering equipment; Elevated Temperature

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.099

Exposure estimation and reference to its source - Workers: 8: Cleaning of solids filtering equipment; Non-dedicated facility

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Treatment and disposal of filtered solids

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.093

Exposure estimation and reference to its source - Workers: 10: Process sampling

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.27

Exposure estimation and reference to its source - Workers: 11: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Exposure estimation and reference to its source - Workers: 12: Pouring from small containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 13: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.205

Exposure estimation and reference to its source - Workers: 14: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.2

Exposure estimation and reference to its source - Workers: 15: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR) - PROC01: combined routes, systemic, long term: <0.01 Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.165

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in water treatment agents - Industrial

List of use descriptors : **Identified use name:** Use in water treatment agents - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13, PROC28
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures -** ERC04

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13, PROC28
Bulk transfers - PROC02
Drum/batch transfers - PROC08b
General exposures (closed systems) - PROC03
General exposures (open systems) - PROC04
Pouring from small containers - PROC13
Equipment cleaning and maintenance - PROC08a, PROC28
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 100 %
Daily amount per site (tonnes/day): <= 0.1 tonnes/day
Annual site tonnage (tonnes/year): <= 11.2 tonnes/year

Other operational conditions of use affecting environmental exposure : Receiving surface water flow (m^3/day): >= 1.8E4 m^3/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.
Assumed domestic sewage treatment plant flow (m^3/day): >= 2E3 m^3/day

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Bulk transfers

Use in contained systems

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 5: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Pouring from small containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Equipment cleaning and maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure on-tool extraction is used. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 90 %
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 9: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day

Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.
Organisational measures to prevent/limit releases, dispersion and exposure	:	Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 3.22a.v3 Release rate Estimated release factor (Water): 9.5 kg/day Estimated release factor (Air): 5 kg/day Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Bulk transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.165

Exposure estimation and reference to its source - Workers: 4: Drum/batch transfers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.48

Exposure estimation and reference to its source - Workers: 5: General exposures (closed systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.232

Exposure estimation and reference to its source - Workers: 6: General exposures (open systems)

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.135

Exposure estimation and reference to its source - Workers: 7: Pouring from small containers

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.086

Exposure estimation and reference to its source - Workers: 8: Equipment cleaning and maintenance

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.23

Exposure estimation and reference to its source - Workers: 9: Storage

Exposure assessment (human):	:	ECETOC TRA worker v3
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in water treatment agents - Professional

List of use descriptors : **Identified use name:** Use in water treatment agents - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13, PROC28
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13, PROC28
Drum/batch transfers - PROC08b
General exposures (closed systems) - PROC02, PROC03
General exposures (open systems) - PROC04
Pouring from small containers - PROC13
Equipment maintenance - PROC08a, PROC28
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use of the substance for the treatment of water in open and closed systems.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Fraction of EU tonnage used in region: 10 %
Daily local widespread use amount: (tonnes/day): <= 2.47E-5tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Conditions and measures related to external treatment of waste for disposal : Dispose of waste product or used containers according to local regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (eye irritants)
Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.

General measures (skin irritants)
Ensure that direct skin contact is avoided. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Drum/batch transfers

Dedicated facility

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 1 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 4: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 6: Pouring from small containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 7: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Ventilation control measures	:	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Handle in an enclosing hood with exhaust ventilation. Ensure fixed capturing hood is used. Local exhaust ventilation - efficiency of at least: 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Contributing scenario controlling worker exposure for 8: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Technical conditions and measures at process level (source) to prevent release : Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source : ESVOC SPERC 8.22b.v2
Release rate
Estimated release factor (Water): 0.025 kg/day
Estimated release factor (Air): 2.47E-4 kg/day
Estimated release factor (Soil): 0 kg/day

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Workers: 3: Drum/batch transfers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.073

Exposure estimation and reference to its source - Workers: 4: General exposures (closed systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR) - PROC02: combined routes, systemic, long term: 0.185
Risk Characterisation Ratio (RCR) - PROC03: combined routes, systemic, long term: 0.182

Exposure estimation and reference to its source - Workers: 5: General exposures (open systems)

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.265

Exposure estimation and reference to its source - Workers: 6: Pouring from small containers

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.19

Exposure estimation and reference to its source - Workers: 7: Equipment maintenance

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.41

Exposure estimation and reference to its source - Workers: 8: Storage

Exposure assessment (human): : ECETOC TRA worker v3

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: <0.01

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Scaling tool: ECETOC TRA worker v3 Scaling instructions: If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Water treatment chemicals - Professional

List of use descriptors : **Identified use name:** Water treatment chemicals - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08f

Environmental contributing scenarios : **General exposures -** ERC08f

Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13
Drum/batch transfers - PROC08b
General exposures (closed systems) - PROC03
General exposures (open systems) - PROC04
Pouring from small containers - PROC13
Equipment maintenance - PROC08a
Storage - PROC01

Processes and activities covered by the exposure scenario : Covers the use of the substance for the treatment of water in open and closed systems.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 1.5 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 1
Maximum daily site tonnage (kg/day): 4 kg/day
Regional use tonnage (tonnes/year): 4.5 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.01
Release fraction to soil from process (initial release prior to RMM): 0
Release fraction to wastewater from process (initial release prior to RMM): 0.99

Technical conditions and measures at process level (source) to prevent release : Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of: 0 % Risk from environmental exposure is driven by soil. Treat air emission to provide a typical removal efficiency of: Not applicable. Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of: 69.8 %
Organisational measures to prevent/limit release from site	:	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant	:	Assumed domestic sewage treatment plant flow (m³/day): 2 000 m³/day Estimated substance removal from wastewater via municipal sewage treatment: 93.7 % Not applicable as there is no release to wastewater. Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow] (kg/day): 19 kg/day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs: 93.7 %
Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.
Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting.

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.
Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/ bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 3: Drum/batch transfers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 4: General exposures (closed systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 5: General exposures (open systems)

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 6: Pouring from small containers

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 7: Equipment maintenance

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Contributing scenario controlling worker exposure for 8: Storage

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers percentage substance in the product up to 100 %.
Frequency and duration of use/exposure	:	Covers use up to 8 h/day
Other operational conditions affecting worker exposure	:	Assumes use at not more than 20°C above ambient temperaure.
Technical conditions and measures at process level (source) to prevent release	:	Store substance within a closed system.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 8.22b.v1

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 3: Drum/batch transfers

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 4: General exposures (closed systems)

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 5: General exposures (open systems)

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 6: Pouring from small containers

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 7: Equipment maintenance

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Workers: 8: Storage

Exposure assessment (human):	:	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	:	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Maximum Risk Characterization Ratios for air emissions 0.21 Maximum Risk Characterisation Ratios for waste water emissions 0.21 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Health	:	Available hazard data do not support the need for a DNEL to be established for other health effects. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Risk management measures are based on qualitative risk characterisation. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in agrochemicals - Consumer

List of use descriptors : **Identified use name:** Use in agrochemicals - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC12, PC27

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PC12, PC27
Fertilizers - PC12
Plant protection products - PC27

Processes and activities covered by the exposure scenario : Covers the consumer use in agrochemicals in liquid and solid forms.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 9.9E-6 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 5 %

Other given operational conditions affecting consumers exposure : Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Fertilizers

Lawn and garden preparations

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 5 %

Frequency and duration of use/exposure : Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure	: Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.

Contributing scenario controlling consumer exposure for 4: Plant protection products

Product characteristics	: Liquid
Concentration of substance in mixture or article	: Covers concentrations up to 5 %
Frequency and duration of use/exposure	: Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	: Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	: EUSES
Exposure estimation and reference to its source	: ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 9.9E-5 kg/day Estimated release factor (Air): 8.91E-3 kg/day Estimated release factor (Soil): 8.91E-3 kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	: EGRET Consumer Tool V2
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 3: Fertilizers

Exposure assessment (human):	: EGRET Consumer Tool V2
Exposure estimation and reference to its source	: Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.54

Exposure estimation and reference to its source - Consumers: 4: Plant protection products

Exposure assessment (human):	: EGRET Consumer Tool V2
Exposure estimation and reference to its source	: Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.54

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	: Not available.
Health	: Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Consumer

List of use descriptors : **Identified use name:** Functional fluids - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC16, PC17

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC16, PC17
Heat transfer fluids - PC16
Hydraulic fluids - PC17

Processes and activities covered by the exposure scenario : Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 1.1E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Heat transfer fluids

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : For each use event, covers use amounts up to (g/event): 2.2E3 g/event

Frequency and duration of use/exposure : Exposure duration: 0.17 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 4: Hydraulic fluids

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.2E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 2.75E-3 kg/day Estimated release factor (Air): 5.5E-3 kg/day Estimated release factor (Soil): 2.75-E kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Heat transfer fluids

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.104

Exposure estimation and reference to its source - Consumers: 4: Hydraulic fluids

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.104

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Not available.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Lubricants - Consumer (high release)

List of use descriptors : **Identified use name:** Lubricants - Consumer (high release)
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d, ERC09a, ERC09b
Market sector by type of chemical product: PC01, PC24, PC31

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d, ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC01, PC24, PC31
Glues, hobby use - PC01
Glues DIY-use (carpet glue, tile glue, wood parquet glue) - PC01
Glue from spray - PC01
Sealants - PC01
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax/cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31

Processes and activities covered by the exposure scenario : Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 1.38E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 9 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 3.1E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 6 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 5: Glue from spray

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 85.05 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Sealants

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 75 g/event
Frequency and duration of use/exposure	:	Exposure duration:1 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 7: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.2E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 8: Pastes

Lubricants, greases, release products

Product characteristics	:	Pastes
Concentration of substance in mixture or article	:	Covers concentrations up to 20 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 34 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 9: Sprays

Lubricants, greases, release products

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 12 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 73 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 10: Polishes, wax/cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 142 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1.23 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 11: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 35 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 6.88E-3 kg/day Estimated release factor (Air): 0.021 kg/day Estimated release factor (Soil): 6.88E-3 kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.237

Exposure estimation and reference to its source - Consumers: 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.447

Exposure estimation and reference to its source - Consumers: 5: Glue from spray

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.05

Exposure estimation and reference to its source - Consumers: 6: Sealants

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.307

Exposure estimation and reference to its source - Consumers: 7: Liquids

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.104

Exposure estimation and reference to its source - Consumers: 8: Pastes

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.041

Exposure estimation and reference to its source - Consumers: 9: Sprays

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.024

Exposure estimation and reference to its source - Consumers: 10: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.167

Exposure estimation and reference to its source - Consumers: 11: Polishes, spray (furniture, shoes)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.06

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Not available.
Health	:	Not available.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Lubricants - Consumer (Low release)

List of use descriptors : **Identified use name:** Lubricants - Consumer (Low release)
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC01, PC24, PC31

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC01, PC24, PC31
Glues, hobby use - PC01
Glues DIY-use (carpet glue, tile glue, wood parquet glue) - PC01
Glue from spray - PC01
Sealants - PC01
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax/cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31

Processes and activities covered by the exposure scenario : Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Predominantly hydrophobic
Substance is complex UVCB.

Amounts used : Annual site tonnage (tonnes/year): 0.013 tonnes/year
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
Maximum daily site tonnage (kg/day): 0.034 kg/day
Regional use tonnage (tonnes/year): 25 tonnes/year

Frequency and duration of use : Continuous release
Emission days (days per year): 365 days per year

Environment factors not influenced by risk management : Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other operational conditions of use affecting environmental exposure : Release fraction to air from process (initial release prior to RMM): 0.01
Release fraction to soil from process (initial release prior to RMM): 0.01
Release fraction to wastewater from process (initial release prior to RMM): 0.01

Conditions and measures related to municipal sewage treatment plant : Assumed domestic sewage treatment plant flow (m^3/day): 2 000 m^3/day
Estimated substance removal from wastewater via municipal sewage treatment: 93.7 %
Not applicable as there is no release to wastewater.
Maximum allowable site tonnage (MSafe) (kg/d): [Assumed domestic sewage treatment plant flow]: 33 kg/day

Conditions and measures related to external treatment of waste for disposal	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.
Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For flammable substances a selection of the following measures need to be implemented to control unintended ignition of flammable substances. These measures are expected to be suitable to prevent minor accidents which might occur during consumer use. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, it is anticipated that there is no immediate concern as the risk should be controlled to an acceptable level. Use only with adequate ventilation. Avoid all possible sources of ignition (spark or flame). - No smoking. Review SDS for additional advice..

Product characteristics	:	Liquid
Amounts used	:	Not applicable.
Frequency and duration of use/exposure	:	Not applicable.
Other given operational conditions affecting consumers exposure	:	Not applicable.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm^2 For each use event, covers use amounts up to 9 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers exposure up to 4 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 110 cm² For each use event, covers use amounts up to 6 390 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 1 days per year Covers exposure up to 6 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 5: Glue from spray

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 85.05 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 6 days per year Covers exposure up to 4 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Sealants

Adhesives, sealants

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	Covers skin contact area up to 35.73 cm² For each use event, covers use amounts up to 75 g Covers use in room size of 20 m³
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 365 days per year Covers exposure up to 1 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 7: Liquids

Lubricants, greases, release products

Product characteristics : Liquid

Concentration of substance in mixture or article : Covers concentrations up to 100 %

Amounts used : Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 2 200 g
Covers use in room size of 34 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 4 days per year
Covers exposure up to 0.17 hour(s)
Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 8: Pastes

Lubricants, greases, release products

Product characteristics : Pastes

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : Covers skin contact area up to 468 cm²
For each use event, covers use amounts up to 34 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 10 days per year
Covers exposure up to 4 hour(s)
Covers use under typical household ventilation.

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 9: Sprays

Lubricants, greases, release products

Product characteristics : Spray

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : Covers skin contact area up to 428.75 cm²
For each use event, covers use amounts up to 73 g
Covers use in room size of 20 m³

Frequency and duration of use/exposure : Covers use up to 1 times per day
Covers use up to 6 days per year
Covers exposure up to 0.17 hour(s)
Covers use under typical household ventilation.

Other given operational conditions affecting consumers exposure : Covers use at ambient temperatures.
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 10: Polishes, wax/cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 142 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 29 days per year Covers exposure up to 1.23 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 11: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	Covers skin contact area up to 430 cm^2 For each use event, covers use amounts up to 35 g Covers use in room size of 20 m^3
Frequency and duration of use/exposure	:	Covers use up to 1 times per day Covers use up to 8 days per year Covers exposure up to 0.33 hour(s) Covers use under typical household ventilation.
Other given operational conditions affecting consumers exposure	:	Covers use at ambient temperatures. Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	:	ESVOC SPERC 9.6d.v1

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 5: Glue from spray

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 6: Sealants

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 7: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 8: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 9: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 10: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Exposure estimation and reference to its source - Consumers: 11: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Further details on scaling and control technologies are provided in SPERC factsheet. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Maximum Risk Characterization Ratios for air emissions: 0.000022 Maximum Risk Characterisation Ratios for waste water emissions: 0.00097
Health	:	Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH CSA

Environment	:	Not available.
Health	:	Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Consumer

List of use descriptors : **Identified use name:** Use as a fuel - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b
Market sector by type of chemical product: PC13

Environmental contributing scenarios : **General exposures -** ERC09a, ERC09b

Health Contributing scenarios : **General measures applicable to all activities -** PC13
Liquid: automotive refuelling - PC13
Liquid: Scooter refuelling - PC13
Liquid: garden equipment - use - PC13
Liquid: garden equipment - refuelling - PC13
Liquid: home space heater fuel - PC13
Liquid: lamp oil - PC13

Processes and activities covered by the exposure scenario : Covers consumer uses in liquid fuels.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 1.6E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.
Outdoor use

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Liquid: automotive refuelling

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 3.75E4 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.05 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Outdoor use

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 4: Liquid: Scooter refuelling

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 3.75E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.033 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Outdoor use

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 5: Liquid: garden equipment - use

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 750 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Outdoor use

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Liquid: garden equipment - refuelling

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 750 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.03 h/event Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure	: Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.

Contributing scenario controlling consumer exposure for 7: Liquid: home space heater fuel

Product characteristics	: Liquid No spraying
Concentration of substance in mixture or article	: Covers concentrations up to 30 %
Amounts used	: For each use event, covers use amounts up to (g/event): 3E3 g/event
Frequency and duration of use/exposure	: Exposure duration: 0.03 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	: Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.

Contributing scenario controlling consumer exposure for 8: Liquid: lamp oil

Product characteristics	: Liquid No spraying
Concentration of substance in mixture or article	: Covers concentrations up to 30 %
Amounts used	: For each use event, covers use amounts up to (g/event): 100 g/event
Frequency and duration of use/exposure	: Exposure duration: 0.013 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	: Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	: Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	: Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	: EUSES
Exposure estimation and reference to its source	: ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 1.59E-6 kg/day Estimated release factor (Air): 1.6E-5 kg/day Estimated release factor (Soil): 1.59E-6 kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	: EGRET Consumer Tool V2
Exposure estimation and reference to its source	: Not available.

Exposure estimation and reference to its source - Consumers: 3: Liquid: automotive refuelling

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.695

Exposure estimation and reference to its source - Consumers: 4: Liquid: Scooter refuelling

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.693

Exposure estimation and reference to its source - Consumers: 5: Liquid: garden equipment - use

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.01

Exposure estimation and reference to its source - Consumers: 6: Liquid: garden equipment - refuelling

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.276

Exposure estimation and reference to its source - Consumers: 7: Liquid: home space heater fuel

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.69

Exposure estimation and reference to its source - Consumers: 8: Liquid: lamp oil

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.689

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not available.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Consumer

List of use descriptors : **Identified use name:** Use in cleaning agents - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC03, PC04, PC08, PC09a, PC09b, PC09c, PC24, PC35, PC38

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities -** PC03, PC04, PC08, PC09a, PC09b, PC09c, PC24, PC35, PC38
Air care, instant action (aerosol sprays) - PC03
Air care, continuous action (solid and liquid) - PC03
Washing car window - PC04
Pouring into radiator - PC04
Lock de-icer - PC04
Laundry and dish washing products - PC08
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) - PC08
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) - PC08
Waterborne latex wall paint - PC09a
Solvent-rich, high-solid, water-borne paint - PC09a
Aerosol spray can - PC09a
Removers (paint-, glue-, wall paper-, sealant-remover) - PC09a
Fillers and putty - PC09b
Plasters and floor equalisers - PC09b
Modelling clay - PC09b
Finger paints - PC09c
Liquids - PC24
Pastes - PC24
Sprays - PC24
Laundry and dish-washing products - PC35
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) - PC35
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) - PC35
Welding and soldering products, flux products - PC38

Processes and activities covered by the exposure scenario : Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 2.75E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

General measures (aspiration)

The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.
Product safety-related measures: Do not ingest. If swallowed then seek immediate medical assistance. Do not induce vomiting. Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage. Keep lamps filled with this liquid out of the reach of children.

General measures (flammability)

Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For flammable substances a selection of the following measures need to be implemented to control unintended ignition of flammable substances. These measures are expected to be suitable to prevent minor accidents which might occur during consumer use. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, it is anticipated that there is no immediate concern as the risk should be controlled to an acceptable level. Use only with adequate ventilation. Avoid all possible sources of ignition (spark or flame). - No smoking. Review SDS for additional advice..

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Air care, instant action (aerosol sprays)

Air care products

Product characteristics : Spray

Concentration of substance in mixture or article : Covers concentrations up to 50 %

Amounts used : For each use event, covers use amounts up to (g/event): 0.1 g/event

Frequency and duration of use/exposure : Exposure duration: 0.25 h/event
Covers use up to 4 events per day

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.
Dermal exposure assumed to be negligible.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 4: Air care, continuous action (solid and liquid)

Air care products

Product characteristics	:	Solid / Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0.48 g/event
Frequency and duration of use/exposure	:	Exposure duration: 8 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 5: Washing car window

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0.5 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.017 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Dermal exposure assumed to be negligible.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Pouring into radiator

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 7: Lock de-icer

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 4 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.25 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 8: Laundry and dish washing products

Biocidal products (Disinfectants, Pest control)

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 15 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.5 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 9: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Biocidal products (Disinfectants, Pest control)

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 27 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 10: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Biocidal products (Disinfectants, Pest control)

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 35 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 11: Waterborne latex wall paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.54E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 12: Solvent-rich, high-solid, water-borne paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 744 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 13: Aerosol spray can

Coatings and paints, thinners, paint removers

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 12.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 215 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 14: Removers (paint-, glue-, wall paper-, sealant-remover)

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 12.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 491 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 15: Fillers and putty

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 2 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 85 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 16: Plasters and floor equalisers

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 0.4 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 1.38E4 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 17: Modelling clay

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 18: Finger paints

Product characteristics	:	Liquid
Concentration of substance in mixture or article	:	Covers concentrations up to 2 %
Frequency and duration of use/exposure	:	Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 19: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.2E3 g/event

Frequency and duration of use/exposure : Exposure duration: 0.17h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 20: Pastes

Lubricants, greases, release products

Product characteristics : Pastes
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 20 %

Amounts used : For each use event, covers use amounts up to (g/event): 34 g/event

Frequency and duration of use/exposure : Exposure duration: 1 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 21: Sprays

Lubricants, greases, release products

Product characteristics : Spray

Concentration of substance in mixture or article : Covers concentrations up to 18 %

Amounts used : For each use event, covers use amounts up to (g/event): 73 g/event

Frequency and duration of use/exposure : Exposure duration: 0.17 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 22: Laundry and dish-washing products

Washing and cleaning products (including solvent based products)

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 5 %

Amounts used : For each use event, covers use amounts up to (g/event): 15 g/event

Frequency and duration of use/exposure : Exposure duration: 0.5 h/event
Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 23: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Washing and cleaning products (including solvent based products)

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 27 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 24: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Washing and cleaning products (including solvent based products)

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 35 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 25: Welding and soldering products, flux products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 20 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 12 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Dermal exposure assumed to be negligible.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 6.88E-3 kg/day Estimated release factor (Air): 0.261 kg/day Estimated release factor (Soil): 6.88E-3 kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Air care, instant action (aerosol sprays)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: < 0.01

Exposure estimation and reference to its source - Consumers: 4: Air care, continuous action (solid and liquid)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: < 0.01

Exposure estimation and reference to its source - Consumers: 5: Washing car window

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: < 0.01

Exposure estimation and reference to its source - Consumers: 6: Pouring into radiator

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.494

Exposure estimation and reference to its source - Consumers: 7: Lock de-icer

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.708

Exposure estimation and reference to its source - Consumers: 8: Laundry and dish washing products

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.014

Exposure estimation and reference to its source - Consumers: 9: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure assessment (human):	:	EGRET Consumer Tool V2
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.481

Exposure estimation and reference to its source - Consumers: 10: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.727

Exposure estimation and reference to its source - Consumers: 11: Waterborne latex wall paint

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.058

Exposure estimation and reference to its source - Consumers: 12: Solvent-rich, high-solid, water-borne paint

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.061

Exposure estimation and reference to its source - Consumers: 13: Aerosol spray can

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.097

Exposure estimation and reference to its source - Consumers: 14: Removers (paint-, glue-, wall paper-, sealant-remover)

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.658

Exposure estimation and reference to its source - Consumers: 15: Fillers and putty

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.083

Exposure estimation and reference to its source - Consumers: 16: Plasters and floor equalisers

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.115

Exposure estimation and reference to its source - Consumers: 17: Modelling clay

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.214

Exposure estimation and reference to its source - Consumers: 18: Finger paints

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.462

Exposure estimation and reference to its source - Consumers: 19: Liquids

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.104

Exposure estimation and reference to its source - Consumers: 20: Pastes

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.041

Exposure estimation and reference to its source - Consumers: 21: Sprays

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.035

Exposure estimation and reference to its source - Consumers: 22: Laundry and dish-washing products

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.014

Exposure estimation and reference to its source - Consumers: 23: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.481

Exposure estimation and reference to its source - Consumers: 24: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.727

Exposure estimation and reference to its source - Consumers: 25: Welding and soldering products, flux products

Exposure assessment (human): : EGRET Consumer Tool V2

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.053

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not available.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition : Mixture

Code : P000001069

Product name : PC FLUIDS VARSOL 40 ULC

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Consumer

List of use descriptors :
Identified use name: Use in coatings - Consumer
Sector of end use: SU21
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Market sector by type of chemical product: PC01, PC04, PC08, PC09a, PC09b, PC09c, PC15, PC18, PC23, PC24, PC31, PC34

Environmental contributing scenarios : **General exposures -** ERC08a, ERC08d

Health Contributing scenarios :
General measures applicable to all activities - PC01, PC04, PC08, PC09a, PC09b, PC09c, PC15, PC18, PC23, PC24, PC31, PC34
Glues, hobby use - PC01
Glues DIY-use (carpet glue, tile glue, wood parquet glue) - PC01
Glue from spray - PC01
Sealants - PC01
Washing car window - PC04
Pouring into radiator - PC04
Lock de-icer - PC04
Laundry and dish-washing products - PC08
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) - PC08
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) - PC08
Waterborne latex wall paint - PC09a
Solvent-rich, high-solid, water-borne paint - PC09a
Aerosol spray can - PC09a
Removers (paint-, glue-, wall paper-, sealant-remover) - PC09a
Fillers and putty - PC09b
Plasters and floor equalisers - PC09b
Modelling clay - PC09b
Finger paints - PC09c
Non-metal-surface treatment products: Waterborne latex wall paint - PC15
Non-metal-surface treatment products: waterborne paint - PC15
Non-metal-surface treatment products: aerosol sprays - PC15
Non-metal-surface treatment products: Removers - PC15
Ink and toners - PC18
Polishes, wax / cream (floor, furniture, shoes) - PC23
Polishes, spray (furniture, shoes) - PC23
Liquids - PC24
Pastes - PC24
Sprays - PC24
Polishes, wax/cream (floor, furniture, shoes) - PC31
Polishes, spray (furniture, shoes) - PC31
Textile dyes and impregnating products - PC34

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Amounts used : Daily local widespread use amount: (tonnes/day): <= 2.75E-4 tonnes/day

Conditions and measures related to municipal sewage treatment plant : Sewage treatment plant used.

Contributing scenario controlling consumer exposure for 2: General measures applicable to all activities

Product characteristics : Liquid
No spraying

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 3: Glues, hobby use

Adhesives, sealants

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Amounts used : For each use event, covers use amounts up to 9 g/event

Frequency and duration of use/exposure : Exposure duration: 4 h/event
Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Adhesives, sealants

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 30 %

Amounts used : For each use event, covers use amounts up to (g/event): 3.1E3 g/event

Frequency and duration of use/exposure : Exposure duration: 6 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 5: Glue from spray

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 85.05 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 6: Sealants

Adhesives, sealants

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 75 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 7: Washing car window

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0.5 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.017 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Dermal exposure assumed to be negligible

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 8: Pouring into radiator

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 9: Lock de-icer

Anti-freeze and de-icing products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0.25 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.25 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 10: Laundry and dish-washing products

Biocidal products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 15 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.5 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 11: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Biocidal products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 27 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 12: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Biocidal products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 35 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 13: Waterborne latex wall paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.54E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 14: Solvent-rich, high-solid, water-borne paint

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 744 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 15: Aerosol spray can

Coatings and paints, thinners, paint removers

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 12.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 215 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 16: Removers (paint-, glue-, wall paper-, sealant-remover)

Coatings and paints, thinners, paint removers

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 12.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 491 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 17: Fillers and putty

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 2 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 85 g/event
Frequency and duration of use/exposure	:	Exposure duration: 4 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 18: Plasters and floor equalisers

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 0.4 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 6.9E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 19: Modelling clay

Fillers, putties, plasters, modelling clay

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 0 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 20: Finger paints

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 2 %
Frequency and duration of use/exposure	:	Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Inhalation exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 21: Non-metal-surface treatment products: Waterborne latex wall paint

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 1.5 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.76E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 22: Non-metal-surface treatment products: waterborne paint

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 15 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 744 g/event
Frequency and duration of use/exposure	:	Exposure duration: 2.2 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 23: Non-metal-surface treatment products: aerosol sprays

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 12 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 215 g/event

Frequency and duration of use/exposure : Exposure duration: 0.33 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.
Dermal exposure assumed to be negligible

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 24: Non-metal-surface treatment products: Removers

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 12 %

Amounts used : For each use event, covers use amounts up to (g/event): 491 g/event

Frequency and duration of use/exposure : Exposure duration: 2 h/event
Covers use up to 1 events per day
Covers infrequent uses, up to 2 weeks per year

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 25: Ink and toners

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 10 %

Amounts used : For each use event, covers use amounts up to (g/event): 40 g/event

Frequency and duration of use/exposure : Exposure duration: 2.2 h/event
Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene : Not applicable.

Contributing scenario controlling consumer exposure for 26: Polishes, wax / cream (floor, furniture, shoes)

Leather treatment products / Impregnation agent / Tanning of leather. / Leather finishing.

Product characteristics : Liquid
No spraying

Concentration of substance in mixture or article : Covers concentrations up to 25 %

Amounts used : For each use event, covers use amounts up to (g/event): 56 g/event

Frequency and duration of use/exposure : Exposure duration: 1.23 h/event
Covers use up to 1 events per day

Other given operational conditions affecting consumers exposure : Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 27: Polishes, spray (furniture, shoes)

Leather treatment products / Impregnation agent / Tanning of leather. / Leather finishing.

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 30 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 56 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 28: Liquids

Lubricants, greases, release products

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 50 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 2.2E3 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 29: Pastes

Lubricants, greases, release products

Product characteristics	:	Pastes
Concentration of substance in mixture or article	:	Covers concentrations up to 20 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 34 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant. Dermal exposure assumed to be negligible

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 30: Sprays

Lubricants, greases, release products

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 18 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 73 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.17 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 31: Polishes, wax/cream (floor, furniture, shoes)

Polishes and wax blends

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 142 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1.23 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 32: Polishes, spray (furniture, shoes)

Polishes and wax blends

Product characteristics	:	Spray
Concentration of substance in mixture or article	:	Covers concentrations up to 40 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 35 g/event
Frequency and duration of use/exposure	:	Exposure duration: 0.33 h/event Covers use up to 1 events per day Covers infrequent uses, up to 2 weeks per year
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Contributing scenario controlling consumer exposure for 33: Textile dyes and impregnating products

Bleaching aid. / Other processing aids

Product characteristics	:	Liquid No spraying
Concentration of substance in mixture or article	:	Covers concentrations up to 10 %
Amounts used	:	For each use event, covers use amounts up to (g/event): 115 g/event
Frequency and duration of use/exposure	:	Exposure duration: 1 h/event Covers use up to 1 events per day
Other given operational conditions affecting consumers exposure	:	Oral exposure is considered to be not relevant.

Conditions and measures related to personal protection and hygiene

Advice on general occupational hygiene	:	Not applicable.

Section 3 - Exposure estimation and reference to its source

Website:	:	Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	ESIG/ESVOC SpERC (PetroRisk v7.07) Release rate Estimated release factor (Water): 0.24 kg/day Estimated release factor (Air): 23.63 kg/day Estimated release factor (Soil): 0.12 kg/day Risk Characterisation Ratio (RCR) - Inhalation, systemic: <0.01

Exposure estimation and reference to its source - Consumers: 2: General measures applicable to all activities

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Not available.

Exposure estimation and reference to its source - Consumers: 3: Glues, hobby use

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.237

Exposure estimation and reference to its source - Consumers: 4: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.447

Exposure estimation and reference to its source - Consumers: 5: Glue from spray

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.242

Exposure estimation and reference to its source - Consumers: 6: Sealants

Exposure assessment (human):	:	ECETOC TRA, consumer
Exposure estimation and reference to its source	:	Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.36

Exposure estimation and reference to its source - Consumers: 7: Washing car window

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: < 0.01

Exposure estimation and reference to its source - Consumers: 8: Pouring into radiator

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.494

Exposure estimation and reference to its source - Consumers: 9: Lock de-icer

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.706

Exposure estimation and reference to its source - Consumers: 10: Laundry and dish-washing products

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.014

Exposure estimation and reference to its source - Consumers: 11: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.481

Exposure estimation and reference to its source - Consumers: 12: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.727

Exposure estimation and reference to its source - Consumers: 13: Waterborne latex wall paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.058

Exposure estimation and reference to its source - Consumers: 14: Solvent-rich, high-solid, water-borne paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.061

Exposure estimation and reference to its source - Consumers: 15: Aerosol spray can

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.097

Exposure estimation and reference to its source - Consumers: 16: Removers (paint-, glue-, wall paper-, sealant-remover)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.658

Exposure estimation and reference to its source - Consumers: 17: Fillers and putty

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.077

Exposure estimation and reference to its source - Consumers: 18: Plasters and floor equalisers

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.115

Exposure estimation and reference to its source - Consumers: 19: Modelling clay

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.214

Exposure estimation and reference to its source - Consumers: 20: Finger paints

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.462

Exposure estimation and reference to its source - Consumers: 21: Non-metal-surface treatment products: Waterborne latex wall paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.058

Exposure estimation and reference to its source - Consumers: 22: Non-metal-surface treatment products: waterborne paint

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.322

Exposure estimation and reference to its source - Consumers: 23: Non-metal-surface treatment products: aerosol sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.483

Exposure estimation and reference to its source - Consumers: 24: Non-metal-surface treatment products: Removers

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.381

Exposure estimation and reference to its source - Consumers: 25: Ink and toners

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.221

Exposure estimation and reference to its source - Consumers: 26: Polishes, wax / cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.378

Exposure estimation and reference to its source - Consumers: 27: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.061

Exposure estimation and reference to its source - Consumers: 28: Liquids

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.104

Exposure estimation and reference to its source - Consumers: 29: Pastes

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.041

Exposure estimation and reference to its source - Consumers: 30: Sprays

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.895

Exposure estimation and reference to its source - Consumers: 31: Polishes, wax/cream (floor, furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.832

Exposure estimation and reference to its source - Consumers: 32: Polishes, spray (furniture, shoes)

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.078

Exposure estimation and reference to its source - Consumers: 33: Textile dyes and impregnating products

Exposure assessment (human): : ECETOC TRA, consumer

Exposure estimation and reference to its source : Risk Characterisation Ratio (RCR): combined routes, systemic, long term: 0.263

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not available.

Health : Not available.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.