September 2014

Extended safety data sheets under REACH and CLP regulations

These materials are a guide only and are not intended to provide in-depth regulatory or legal review that may be required to properly determine your company's requirements under REACH. Regulatory and legal questions should be raised to an expert in the field and with legal counsel.
## Objective

### New Safety Data Sheets

- Share our expertise on extended Safety Data Sheets (ext-SDS)
- Enable you to:
  - Be aware of the Safety Data Sheets (SDS) requirements under REACH Annex II
  - Highlight the practical impacts of the REACH/CLP Safety data sheet template requirements
  - Find the crucial info to meet expected queries with FAQ
REACH – SDS – CLP
What has changed?

<table>
<thead>
<tr>
<th>Previous legislation</th>
<th>Current legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification, labelling and packaging</strong></td>
<td></td>
</tr>
<tr>
<td>Dangerous Substance Directive</td>
<td>Classification, Labelling and Packaging of Chemicals Regulation CLP (EC 1272/2008)</td>
</tr>
<tr>
<td>DSD (67/548/EC)</td>
<td></td>
</tr>
<tr>
<td>Dangerous Preparation Directive</td>
<td>For both “substances” and “mixtures” (staggered deadlines)</td>
</tr>
<tr>
<td>DPD (99/45/EC)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety data sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS (91/155/EC)</td>
</tr>
<tr>
<td>Annex II updated in 2010</td>
</tr>
<tr>
<td>Annex II updated in 2010</td>
</tr>
</tbody>
</table>

- **Dangerous Substance Directive** (DSD) (67/548/EC)
- **Dangerous Preparation Directive** (DPD) (99/45/EC)
- **Classification, Labelling and Packaging of Chemicals Regulation** CLP (EC 1272/2008)
- **Safety Data Sheet Directive** (SDS) (91/155/EC)

**What has changed?**
- Classification, labelling and packaging
- Safety data sheets
- Current legislation for both “substances” and “mixtures” (staggered deadlines)
- **Annex II updated in 2010**

**Previous legislation**
- Dangerous Substance Directive (DSD) (67/548/EC)
- Dangerous Preparation Directive (DPD) (99/45/EC)
- Dangerous Substance Directive (DSD) (67/548/EC)
- Dangerous Preparation Directive (DPD) (99/45/EC)
**REACH – SDS – CLP**

**Timeline**

New CLP for substances

**DSD / DPD**

1 Dec 2010

New CLP mandatory for both substances and mixtures

CLP for both substances and mixtures

1 Dec 2012

1 Jun 2015

New SDS requirements in force, making it compulsory to include certain REACH registration data when available.

REACH substances registration (>1 kton/yr)

REACH = Technical Dossier + Chemical Safety Report (CSR) (>10 ton/yr)

DANGEROUS SUBSTANCES

(according to DSD or PBT/vPvB)

Exposure Scenario uses + Risk assessment for supported uses

Extended Safety Data Sheet

Exposure Scenario is in the Annex of the ext-SDS

“ext-SDS should be updated without delay”

NON DANGEROUS SUBSTANCES

No CSR required

No Ext-SDS is required

EXTENDED SAFETY DATA SHEET

No Ext-SDS is required

New CLP for substances

DSD / DPD

1 Dec 2010

New CLP mandatory for both substances and mixtures

CLP for both substances and mixtures

1 Dec 2012

1 Jun 2015

New SDS requirements in force, making it compulsory to include certain REACH registration data when available.

**REACH substances registration (>1 kton/yr)**

REACH = Technical Dossier + Chemical Safety Report (CSR) (>10 ton/yr)

**DANGEROUS SUBSTANCES**

(according to DSD or PBT/vPvB)

Exposure Scenario uses + Risk assessment for supported uses

Extended Safety Data Sheet

Exposure Scenario is in the Annex of the ext-SDS

“ext-SDS should be updated without delay”

**NON DANGEROUS SUBSTANCES**

No CSR required

No Ext-SDS is required

**Timeline**

New CLP for substances

**DSD / DPD**

1 Dec 2010

New CLP mandatory for both substances and mixtures

CLP for both substances and mixtures

1 Dec 2012

1 Jun 2015

New SDS requirements in force, making it compulsory to include certain REACH registration data when available.

**REACH substances registration (>1 kton/yr)**

REACH = Technical Dossier + Chemical Safety Report (CSR) (>10 ton/yr)

**DANGEROUS SUBSTANCES**

(according to DSD or PBT/vPvB)

Exposure Scenario uses + Risk assessment for supported uses

Extended Safety Data Sheet

Exposure Scenario is in the Annex of the ext-SDS

“ext-SDS should be updated without delay”

**CLP** for both substances and mixtures
REACH impact on Safety Data Sheets
Extended Safety Data Sheets (ext-SDS)

• EU Commission objectives for REACH:
  • Harmonize and streamline current EU legislation on chemicals
  • Improve protection of Human Health and Environment from chemicals

• The SDS is the communication tool between supplier and Downstream User about Health, Safety and Environmental information on the chemicals

• Ext-SDS is a SDS that has the Exposure Scenario information from the REACH registration data including RMM (Risk Management Measurements) in an Annex to the SDS

• For mixtures there is an option to incorporate the information into the SDS instead of attaching an Annex. This option does not exist for Substances, and is not used by ExxonMobil.
  • Dangerous substance as defined by the CLP regulation
  • Dangerous mixture as defined in the Dangerous Preparation Directive (DPD) which applies to “dangerous mixtures” until 31 May 2015
CLP is a European regulation (EU 1272/2008) that:

- Is based on (but not synonymous with) the United Nations Globally Harmonised System (GHS)
- Defines the criteria for the identification of the hazards of chemical substances and mixtures related to Physical, Health and Environmental hazards
- Sets rules for classification, labelling and packaging, and prescribes the use of:
  - Hazard statements
  - Precautionary statements
  - Pictograms
- Definitely replaces the DSD/DPD directives after entire transition period. See Slide 3 for details
### Flammable liquids

<table>
<thead>
<tr>
<th>GHS</th>
<th>CLP</th>
<th>DSD/DPD</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
</tr>
<tr>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
</tr>
<tr>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
<td><img src="image" alt="Flammable" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flammable Liquid 1 (H224)</th>
<th>Flammable Liquid 2 (H225)</th>
<th>Flammable Liquid 3 (H226)</th>
<th>Flammable Liquid 4 (H227)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+ (R12)</td>
<td>F (R11)</td>
<td>R10</td>
<td>Some Fluids are qualified flammable Liquid 3 with CLP: Isopar™ H, Isopar™ J, Isopar™ K</td>
</tr>
</tbody>
</table>

- **Flash Point < 23°C and IBP ≤ 35°C**: Flammable Liquid 1 (H224)
- **Flash Point < 23°C and IBP > 35°C**: Flammable Liquid 2 (H225)
- **23°C ≤ FP ≤ 60°C**: Flammable Liquid 3 (H226)
- **60°C < FP ≤ 93°C**: Flammable Liquid 4 (H227)
- **Flash Point < 0°C and IBP ≤ 35°C**: Flammable Liquid 1 (H224)
- **Flash Point < 21°C**: Flammable Liquid 2 (H225)
- **21°C ≤ FP < 55°C**: Flammable Liquid 3 (H226)
Main changes in the updated REACH Annex II SDS requirements

Still 16 section headings
  • contains information organized under the 16 section headings required by REACH Annex II

New information, new concepts
  • REACH Registration number
  • REACH Registration name
  • REACH Identified Uses
  • DNELs - PNECs
  • PBT/vPvB statement
  • Restrictions/Authorizations
  • Additional toxicological information

Inclusion of annex
  • Exposure Scenarios

<table>
<thead>
<tr>
<th>Section</th>
<th>Titles of Sections</th>
<th>Comparison with current MSDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Identification of the substance/mixture and of the company/undertaking</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 2</td>
<td>Hazards identification</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 3</td>
<td>Composition/information on ingredients</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 4</td>
<td>First aid measures</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 5</td>
<td>Fire-fighting measures</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 6</td>
<td>Accidental release measures</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 7</td>
<td>Handling and storage</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 8</td>
<td>Exposure control/personal protection</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 9</td>
<td>Physical and Chemical properties</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 10</td>
<td>Stability and reactivity</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 11</td>
<td>Toxicological information</td>
<td>More Data</td>
</tr>
<tr>
<td>Section 12</td>
<td>Ecological information</td>
<td>More Data</td>
</tr>
<tr>
<td>Section 13</td>
<td>Disposal considerations</td>
<td>Similar</td>
</tr>
<tr>
<td>Section 14</td>
<td>Transport Information</td>
<td>Changes</td>
</tr>
<tr>
<td>Section 15</td>
<td>Regulatory Information</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Section 16</td>
<td>Other information</td>
<td>Major Changes</td>
</tr>
<tr>
<td>Annex</td>
<td>Exposure Scenario</td>
<td>Major Changes</td>
</tr>
</tbody>
</table>
Section 1
Identification of the substance/mixture

This section provides the identification of the product, the relevant uses, the uses advised against and the supplier information.

1.1 Product identifier
• Product description
• Registration names and numbers

1.2 Relevant uses
• Identified uses and uses advised against of the substance/mixture

1.3 Details of the supplier

1.4 Emergency telephone number
Section 2
Hazards identification

This section describes the hazards of the product and the appropriate warning information associated with those hazards.

2.1 Classification of substance or mixture

- Hazard is described using CLP hazard statements

- For substances/mixtures

- Required to classify according to CLP for substances and voluntary for mixtures until June 1 2015.

- DSD/DPD classification shall be disclosed in addition to the CLP classification until June 1 2015.
Section 2

Hazards identification (2)

2.2 Label elements

According to the CLP regulation

- Hazard pictogram(s)
- Signal word
- Hazard statement(s) and
- Precautionary statement(s)

The label elements disclosed on the SDS provides information which is needed for the creation of the Label itself.
2.3 Other hazards

- Physico/chemical hazards: e.g. static charges
- Health hazards: e.g. skin dryness
- **NEW!** Environmental hazards: e.g. Persistent, bio-accumulative and toxic (PBT), and very persistent and very bio-accumulative (vPvB)

REACH Annex XIII defines criteria for the identification of substances that are PBT or vPvB and Annex I lays down general provisions for their assessment.

None of the ExxonMobil Chemical hydrocarbon fluids meets the PBT/vPvB criteria.
Section 3
Composition/information on ingredients

This section:

- Indicates if the material is a substance or a mixture
- Describes the chemical identity of the substance (being 100% of an ingredient because constituents are captured by the naming convention) and the relevant hazardous constituents which are part of the REACH solvent naming convention, this is the REACH name describing the hydrocarbon fluid
- Describes the ingredients of the mixture.

There is no requirement to give the full composition.

### Table: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS#</th>
<th>EC#</th>
<th>Registration#</th>
<th>Concentration</th>
<th>GHS/CLP classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, &lt;2% aromatics</td>
<td>927-241-2</td>
<td>01-2119471843-32</td>
<td>REACH#</td>
<td>100%</td>
<td>Aquatic Chronic 3 H412, Asp. Tox. 1 H304, EUH066, Flamm. Liq. 3 H226, STOT SE 3 H338, Skin Irrit. 3 H316</td>
</tr>
</tbody>
</table>

Product identifier:
Main constituents that are classified and contribute to the classification of the substance are provided.

The UVCB hydrocarbon fluids are no longer identified by a CAS Number under REACH. The CAS# still applies in countries not subject to REACH and is displayed in Section 15 (“Regulation Information”)

Classification acc to CLP and DSD

DSD Symbols/Risk Phrases:
- R10, Xn; R65
- R66, R67, R52/53
Section 4
First aid measures

The measures provided in this section are recommendations for immediate first aid treatment only.

4.1 Description of first aid measures

- Inhalation
- Skin contact
- Eye Contact
- Ingestion

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed
Section 5
Fire fighting measures

This section provides general guidance on fire-fighting and on extinguishing agents to assist the most senior competent individual present at the incident.

5.1 Extinguishing media

- Information is provided on both appropriate and inappropriate extinguishing media

5.2 Special hazards arising from the substance or mixture

5.3 Advice for fire-fighters:
For Fluids, information on flammability properties includes:
- Flash point
- Flammability limits
- Auto-ignition temperature
Section 6
Accidental release measures

This section describes the recommendations on the appropriate response to spills, leaks, or releases, to prevent or minimize any adverse effects on persons, property and the environment.

6.1 Personal precautions, protective equipment and emergency procedures

- Specific advice is provided for many areas incl. the wearing of suitable personal protective equipment removal of ignition sources; provision of sufficient ventilation; dust control; emergency evacuation procedures; consultation with experts.

6.2 Environmental precautions

- Prevent entry into waterways, sewers...

6.3 Methods and material for containment and cleaning up

- Advice on containment or clean-up techniques.

6.4 References to other sections

ExxonMobil
Section 7
Handling and storage

This section provides recommendations for **safe handling techniques of products and safe and optimal storage**.

7.1 Precautions for safe handling
- Recommendations are given for safe handling techniques of products and safe and optimal storage

7.2 Conditions for safe storage, incl. any incompatibilities
- Provides general guidance concerning materials and coatings that are suitable or unsuitable for storage and transfer operations

7.3 Specific end uses
- Section 1 informs about identified end-uses
Section 8
Exposure control/personal protection

This section shares recommendations and data to achieve good industrial hygiene and environmental control practices at work (e.g., risks for man and the environment arising from emissions of dusts, fumes, gases, vapors, mists and liquids).

8.1 CONTROL PARAMETERS

1. Occupational Exposure Limits (OEL) set-up by national (only disclosed on the country SDS) and international bodies:
   - No change on the disclosure of OELs

1. NEW! Exposure limits developed as a consequence of REACH
   - Derived No Effect Level (DNEL)
     Level of exposure above which humans should not be exposed
   - Predicted No Effect Concentrations (PNEC)
     Addresses range of environmental compartments (water, air, soil and sediments)
     For hydrocarbon UVCBs, no single PNEC value is identified for the overall substance or used in risk assessment calculations.

8.2 EXPOSURE CONTROL

- No change
Occupational Exposure Limits (OELs)

- The listed OELs include those set by national and international bodies as well as those recommended by ExxonMobil after professional consideration of all relevant data.
- A number of institutions and countries define OELs:
  - The European Union (EU) publishes OELs under the names Indicative Limit Value (ILV) or Binding Limit Value (BLV).
  - Member States have an obligation to ensure the ILVs are implemented in national health and safety regulations.
- Examples of national OELs include:

<table>
<thead>
<tr>
<th>Country</th>
<th>National OELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Grænseværdier for Stoffer og Materialer</td>
</tr>
<tr>
<td>Finland</td>
<td>Haitalliseksi Tunnetut Pitoisuudet, HTP -arvot</td>
</tr>
<tr>
<td>France</td>
<td>Valeurs Limites d'Exposition Professionnelle (VLEP)</td>
</tr>
<tr>
<td>Germany</td>
<td>Maximale Arbeitsplatzkonzentrationen (MAK) and</td>
</tr>
<tr>
<td></td>
<td>Technische Richtkonzentration (TRK)</td>
</tr>
<tr>
<td>Italy</td>
<td>Massima Concentrazione Consentita (MCC)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Maximale Aanvaarde Concentratie (MAC)</td>
</tr>
<tr>
<td>Norway</td>
<td>Administrative normer</td>
</tr>
<tr>
<td>Sweden</td>
<td>Hygieniska gränsvärden</td>
</tr>
<tr>
<td>UK</td>
<td>Maximum Exposure Limits (MEL) and</td>
</tr>
<tr>
<td></td>
<td>Occupational Exposure Standards (OES)</td>
</tr>
<tr>
<td>US</td>
<td>Permissible Exposure Limits (PEL)</td>
</tr>
</tbody>
</table>
Section 9
Physical and chemical properties

This section describes the empirical data relating to substances and mixtures. The information is consistent with that provided in the REACH registration and/or in the chemical safety report and with the classification of the substance or mixture.

9.1 Information on basic physical and chemical properties

- **NEW!** Data consistent with REACH registration dossier
- **NEW!** Ranges are provided rather than typical data – same as substance reference
- **NEW!** Should not be considered as product specifications

9.2 Other information

“This information is based on current knowledge of characteristic values and does not guarantee any specific property of the product”
This section describes the stability of the substance or mixture and the potential for hazardous reactions occurring under certain conditions of use and also if released into the environment.

10.1 Reactivity
10.2 Chemical stability
10.3 Possibility of hazardous reactions
10.4 Conditions to avoid
10.5 Incompatible materials
10.6 Hazardous decomposition products
Section 11
Toxicological information (fundamentals)

Principles of toxicology

- Every chemical substance is potentially toxic if the dose is high enough. For most substances there is a dose below which the substance will have no adverse effect.
- Different animal species and the individuals within a species do not necessarily respond in the same way to the same dose of a given substance.

Toxic responses can be categorized as:

- **Acute toxicity**
  - Health effects that result from a single exposure, usually to a relatively large amount of a substance over a short time (hours).

- **Chronic toxicity**
  - Health effects with a delayed onset, resulting from repeated exposure to a chemical over periods often measured in years. Carcinogenicity is the main chronic toxicological end point.

- **Irritation /Corrosion**
  - Reversible (irritation) or irreversible (corrosion) damage to living tissue by chemical action at the site of contact.

- **Sensitization**
  - An allergic reaction to a substance; chemicals that have the potential to cause such an effect are called sensitizers and may cause an allergic response after skin contact or respiratory exposure.
Section 11
Toxicological information

This section provides a more detailed description of the possible health hazards of the product presented in Section 2. The toxicological information is derived from animal test programs and/or human experience and covers health hazards that can arise from short-term (acute) or long-term (chronic) exposure to the product by inhalation, skin contact, eye contact or ingestion.

11.1 Information on toxicological effects

- Hazard classes for which data are to be provided are prescribed. Information shall be provided for each of them.

### INFORMATION ON TOXICOLOGICAL EFFECTS

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Conclusion / Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Acute Toxicity (Rat, 4 hours); LD50 = 4991 mg/kg. Test scores or other study results do not meet criteria for classification. May cause central nervous system effects. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403.</td>
</tr>
<tr>
<td></td>
<td>Iritation: No end point data. May be irritating to the respiratory tract. The effects are reversible.</td>
</tr>
<tr>
<td></td>
<td>Ingestion: Acute Toxicity (Rat); LD50 = 5600 mg/kg. Test scores or other study results do not meet criteria for classification. Inherently Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401.</td>
</tr>
<tr>
<td></td>
<td>Skin: Acute Toxicity (Rabbit); LD50 = 6400 mg/kg. Test scores or other study results do not meet criteria for classification. Inherently Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402.</td>
</tr>
<tr>
<td></td>
<td>Skin Corrosion/ Irritation: Data available. Test scores or other study results do not meet criteria for classification. May dry the skin leading to discomfort and dermatitis. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404.</td>
</tr>
<tr>
<td></td>
<td>Eye: Serious Eye Damage/ Irritation: Data available. Test scores or other study results do not meet criteria for classification. May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405.</td>
</tr>
<tr>
<td></td>
<td>Sensitisation: Data available. Test scores or other study results do not meet criteria for classification. Not expected to be a respiratory sensitizer.</td>
</tr>
<tr>
<td></td>
<td>Derm Sensitisation: Data available. Test scores or other study results do not meet criteria for classification. Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406.</td>
</tr>
<tr>
<td></td>
<td>Aspiration: Data available. May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.</td>
</tr>
<tr>
<td></td>
<td>Germ Cell Mutagenicity: Data available. Test scores or other study results do not meet criteria for classification. Not expected to be a germ cell mutagen. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471, 473, 474, 475, 476, and 479.</td>
</tr>
<tr>
<td></td>
<td>Carcinogenicity: Data available. Test scores or other study results do not meet criteria for classification. Not expected to cause cancer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451, 453, 471, 473, 474, 475, 476, and 479.</td>
</tr>
<tr>
<td></td>
<td>Reproductive Toxicity: Data available. Test scores or other study results do not meet criteria for classification. Not expected to be a reproductive toxicant. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414, 421, 422.</td>
</tr>
<tr>
<td></td>
<td>Lactation: No end point data. Not expected to cause harm to breastfed children.</td>
</tr>
<tr>
<td>Specific Target Organ Toxicity (STOT)</td>
<td>Single Exposure: No end point data. May cause drowsiness or dizziness.</td>
</tr>
<tr>
<td></td>
<td>Repetated Exposure: Data available. Test scores or other study results do not meet criteria for classification. Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 408, 413, 422.</td>
</tr>
</tbody>
</table>
Ecological information

This section describes the possible effects, behavior and environmental fate of the substance or mixture in air, water and/or soil.

12.1 Toxicity
12.2 Persistence and degradability
12.3 Bioaccumulative potential
12.4 Mobility in soil
12.5 Persistence bioaccumulation and toxicity for substance(s)
  • PBT / vPvB
12.6 Other adverse effects

Other ecological information

NEW! More detailed ecological data in a table format:
  • on Ecotoxicity
  • on Persistence, Degradability and Bioaccumulation potential
Section 13
Disposal considerations

This section provides **disposal recommendations** based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

13.1 Waste treatment methods

Regulatory disposal information

<table>
<thead>
<tr>
<th>SECTION 13</th>
<th>DISPOSAL CONSIDERATIONS</th>
</tr>
</thead>
</table>

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

### 13.1. WASTE TREATMENT METHODS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

#### REGULATORY DISPOSAL INFORMATION

**European Waste Code:** 08 XX XX

**NOTE:** These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

**Empty Container Warning**

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

This section describes the regulations specific to each mode of transport for the international transport of dangerous goods. Minor changes, but not triggered by REACH/CLP

Land transport
- By road, European agreement (ADR)

Inland waterways
- European agreement (ADN).

Sea transport
- For packaged dangerous goods (International Maritime Dangerous Goods Code – IMDG)
- For bulk liquids (MARPOL: convention under international laws)

Air transport
- International Air Transport Association (IATA).

Packing Group:
I for great danger - II for medium danger – III for low danger

Transport Hazard Class:
Class 3 for flammable liquids
Section 15
Regulatory information

This section describes the regulatory status and applicable laws and regulations.

- List of national/regional chemical inventory that the product complies with.
- CAS numbers provided in this section for reference to countries not subject to REACH

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

- REACH specific information.
- When a substance is authorised details of: substance name, authorisation number, authorised use and expiration date.
- When a substance is subject to restriction details of: substance name and restricted use.

15.2 Chemical safety assessment

- Whether a REACH Chemical safety assessment has been conducted.

ExxonMobil Chemical Fluids are neither subject to authorization nor restriction for any of its intended uses.
This section provides information that is not covered in the previous sections that may have an effect on or an important relationship to safety, health or the environment, is added here on an ad hoc basis. In particular, this section provides:

- **NEW!** REACH Use descriptors
- the sources of data used to compile this SDS
- a legend with the abbreviations and acronyms used in the Safety Data Sheet
- the list of relevant hazard statements and risk phrases as referenced in section 3
- the references to the sections that have been revised since the last issue of the SDS; this informs the reader in which section specific changes are made
Annex to Ext-SDS

Exposure scenario

• The safety data sheets of classified materials are extended with an annex containing the exposure scenarios, when the material is registered as a ‘product on the market’ under REACH

• There is one exposure scenario for each specified use.

• Contents of Exposure Scenario
  • Title
  • Operating conditions and risk management measures
    • Control of worker exposure
    • Control of environmental exposure
  • Exposure estimation
  • Health
  • Environment
  • Guidance to check compliance with ES
  • Annex is a significant portion of the ext-SDS depending on the number of uses (2-3 pages per use)

---

<table>
<thead>
<tr>
<th>Section</th>
<th>Exposure Scenario Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Use Description</td>
<td></td>
</tr>
<tr>
<td>Sector(s) of Use</td>
<td>SU1, SU2, SU9</td>
</tr>
<tr>
<td>Process Categories</td>
<td>PRO01, PRO02, PRO03, PRO04, PRO08a, PRO08b, PRO08c</td>
</tr>
<tr>
<td>Environmental Release Categories</td>
<td>ES001, ES004</td>
</tr>
<tr>
<td>Specific Environmental Release Category</td>
<td>ESVO1 11 x 1</td>
</tr>
</tbody>
</table>

Section 1: Operational conditions and risk management measures

Section 1: Control of worker exposure

Product Characteristic: Liquid

Duration, frequency and amount:
- Covers daily exposure up to 8 hours (unless stated differently [G02]
- Covers percentage substance in the product up to 100 % [G13]
- Other given operational conditions affecting workers exposure
- Assumes a good basic standard of occupational hygiene is implemented [G01]
- Assumes use at not more than 20°C above ambient temperature [G15]

Contributing Scenarios Specific Risk Management Measures and Operating Conditions
- Only required controls to demonstrate safe use listed

General exposures (closed systems) PRO01
- No specific measures identified

General exposures (closed systems) PRO02
- No specific measures identified

General exposures (closed systems) PRO03
- No specific measures identified

General exposures (open systems) PRO04
- No specific measures identified

Process sampling PRO08a
- No specific measures identified

Laboratory activities PRO15
- No specific measures identified

Bulk transfers (open systems) PRO08b
- No specific measures identified

Bulk transfers (closed systems) PRO08b
- No specific measures identified

Equipment cleaning and maintenance PRO08a
- No specific measures identified

---

The annex is a significant portion of the ext-SDS depending on the number of uses (2-3 pages per use).
Back-up
Glossary
Terms and abbreviations (1)


REACH Annex II sets out the requirements that the supplier shall fulfil for the compilation of a safety data sheet that is provided for a substance or a mixture in accordance with Article 31.

Pre- December 1st 2010 Annex II refers to the Dangerous Substances Directive (DSD) and Dangerous Preparations Directives (DPD) and has no requirements for inclusions of REACH registration data.


• **ECHA:** European Chemical Agency
• **Exposure Scenario (ES)**
  The Exposure Scenario represents the output of the Chemical Safety Assessment (CSA) for the substance that is part of the Registration package for that substance. ES means the set of conditions, including operational conditions and risk management measures, that describe how the substance is manufactured or used during its life-cycle and how the manufacturer or importer controls, or recommends downstream users to control, exposures of humans and the environment. These ES may cover one specific process or use or several processes or uses as appropriate. It is written in standard sentences (in order to facilitate ready translation into other languages).

• **REACH solvent naming convention / HSPA naming convention**
  The Hydrocarbon Solvents Producers Association (HSPA), a sector group of CEFIC (European Council of the Chemical Industry) has defined a naming system to characterize hydrocarbon solvents as a substance in order to properly identify similar substances in accordance with the REACH regulation. Full text can be found [here](#).

• **Mixture**
  Mixtures are blends of substances. Mixtures replace the term “preparation” that was used according to the DPD.

• **PBT/vPvB**
  Persistent Bioaccumulative Toxic, very Persistent, very Bioaccumulative substances. REACH Annex XIII defines criteria for the identification of substances.
The use descriptor system developed by ECHA is aimed at standardizing the description of the uses of the substance. It is based on five separate descriptor-lists. The combination of items selected from different lists form a brief description of the life cycle of the substance.

| Sector of Use (SU) | describes the minimum level of detail a registrant is expected to provide in describing the sector of use, and they are important to the assessor as they help in directing the exposure assessment (e.g. selecting the appropriate tools).  
  e.g. SU10 = Formulation Formulation [mixing] of preparations and/or repackaging |
|-------------------|---------------------------------------------------------------------------------------------------|
| Process Category (PROC) | describes the application techniques or process types defined from an occupational perspective. Each PROC has a direct impact on the exposure to be expected and on the Risk Management Measures needed.  
  e.g.: PROC2 = Use in closed, continuous process with occasional controlled exposure. |
| Product Category (PC) | describes the use of a substance by the type of end-use product (e.g. lubricant, cleaner, adhesive) in which the substance is known to be used.  
  e.g.: PC1 = Adhesives, Sealants - PC12 = Fertilizers |
| Environmental Release Category (ERC) | describes the broad conditions of use from an environmental perspective. This is based on those characteristics that give a first indication of the potential of the substance to be released to the environment  
  e.g.: ERC2 = Formulation of preparations, ERC4 = Industrial use of processing aids |
| Article Category (AC) | describes the type of article into which the substance has eventually been processed. This also includes mixtures in their dried or cured form (e.g. dried printing ink in newspapers; dried coatings on various surfaces).  
  Does not apply for ExxonMobil Chemical as supplier of fluids |