



## Decorative coatings with Exxsol™ D and Isopar™ fluids

### Solvents made to withstand future demands

The coatings market is evolving rapidly. Exxsol™ D40 and Exxsol D60 dearomatized fluids and Isopar™ L isoparaaffinic fluid can help your coatings meet changing needs and address the latest market trends.



Exxsol and Isopar fluids have 15 to 85 times lower odor levels than white spirit\*.

### Users generally prefer low odor and odorless coatings

The trend for low odor paints is increasing worldwide. Consumers, business owners and workers all appreciate products that improve comfort, address health concerns and offer a premium painting experience.



Exxsol and Isopar fluids reduce health risks associated with inhalation exposure.

### Users are concerned about health and safety

Business owners, workers and end consumers worldwide are more aware of the health and safety impact of the products they use. The coatings marketplace is increasingly interested in products with lower health and safety concerns.



Exxsol D60 and Isopar fluids do not require flammability labeling.

### Safety, Health and Environmental (SHE) regulations are expanding

The regulatory environment for solvent-based paints is becoming more complex. The European Union has already tightened legislation on solvents, and similar regulations are taking effect or pending in many markets.

- United Nation's Globally Harmonised System of Classification and Labeling of Chemicals (GHS)
- Workplace safety regulations
- VOC regulations
- Storage regulations



Exxsol and Isopar fluids can help you stay ahead of upcoming standards and regulations with improved SHE compliance, and less classification and labeling.

\* Hydrocarbon solvent containing primarily C9-C11 constituents with a distillation range of approximately 150- 200°C and typically containing 15-20% aromatics; example Varsol™ 40.

## Get an edge on the market with safety, health and environment

Low-aromatic solvents can satisfy the growing demand for safer coatings which meet certain safety, health and environment (SHE) performance requirements.

### Safety in numbers: How do Exxsol and Isopar fluids compare to white spirit?

|                                                      | Odor <sup>1</sup> | Occupational exposure limit (OEL) <sup>2</sup> | Vapor hazard ratio (VHR) (at 20°C) <sup>3</sup> | Aromatics content (wt) <sup>3</sup> |
|------------------------------------------------------|-------------------|------------------------------------------------|-------------------------------------------------|-------------------------------------|
| <b>White spirit/mineral spirit-based<sup>4</sup></b> | Reference         | 300 mg/m <sup>3</sup>                          | 40                                              | ≈ 20%                               |
| <b>Exxsol™ D40</b>                                   | Up to 17x lower   | 1200 mg/m <sup>3</sup>                         | 6                                               | < 0.01%                             |
| <b>Exxsol™ D60</b>                                   | Up to 19x lower   | 1200 mg/m <sup>3</sup>                         | 2                                               | 0.01%                               |
| <b>Isopar™ L</b>                                     | Up to 85x lower   | 1200 mg/m <sup>3</sup>                         | 3                                               | < 0.01%                             |

<sup>1</sup> St Croix Sensory Solvent Odor Comparative Analysis, August 2016  
<sup>2</sup> ExxonMobil recommended OEL using Reciprocal Calculation Procedure. (A method for calculating Occupational Exposure Limits (OELs) for hydrocarbon solvent mixtures based on the concentrations of the hydrocarbons present, and on their individual OELs.)  
<sup>3</sup> Fluids at a glance 2015 Asia Pacific  
<sup>4</sup> Varsol 40

### Fulfilling the demand for low odor coatings

Exxsol™ (D40 and D60) or Isopar™ L fluids are low odor or virtually odorless, respectively, a distinct advantage over white spirit-based coatings. The benefits go beyond improving the comfort of workers and users. Paints based on ExxonMobil fluids can also be promoted as increasing profitability for end users (faster usage of freshly painted areas, less downtime). As demand for low odor products increases, appropriate solvent selection can tap into this expanding market.

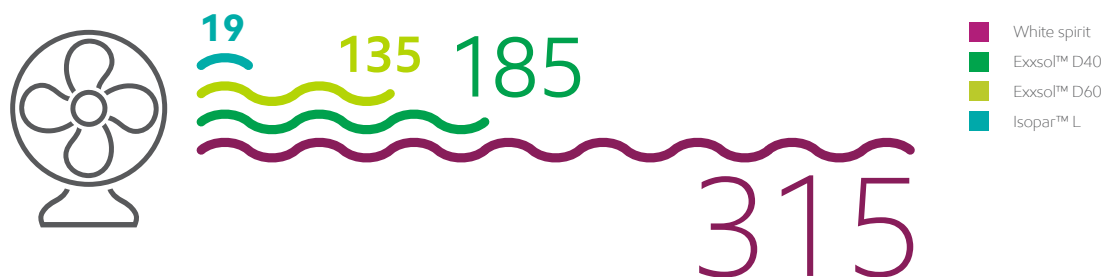
#### Reduced odor detection

Detection threshold (DT) is an estimate of the number of dilutions needed to make the actual odorous air sample "non-detectable"



Test method ASTM International standard E679-04 and Comité Européen de Normalisation (CEN) EN13725:2003

#### Odor intensity



Test method ASTM International standard E544-10

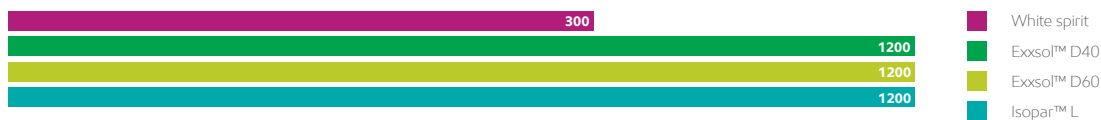
For this method, the odor intensity result is expressed in parts per million (ppm) of n-butanol. A larger value of butanol concentration means a stronger odor. A smaller value of butanol concentration means a weaker odor. Butanol concentrations are used as a referencing scale for purposes of documentation and communication in a reproducible format.



## Boost worker safety with higher OEL and lower VHR

The Occupational Exposure Limit (OEL) of Exxsol™ and Isopar™ L fluids is 4 times higher than white spirit, \* which indicates a significant reduction in risk to workers' health. OEL represents the maximum concentration of a substance in the air that a worker can be exposed to, with no health impact (based on an 8-hour time weighted average). Additionally, low-aromatic solvents require less protective equipment and less ventilation in the workplace than white spirit-based paints.

### OEL<sup>1</sup>



### Occupational exposure limits (mg/m³)

Higher OEL for lower health hazard

### VHR<sup>2</sup>



### Vapor hazard ratio at 20°C

Lower risk of overexposure

The Vapor Hazard Ratio (VHR) is a solvent's ability to evaporate as a ratio to the Occupational Exposure Limit (OEL). Exxsol™ D40, Exxsol D60 and Isopar™ L fluids have a low VHR. Our solvents with lower VHR help protect the health of workers and users by reducing the risk of overexposure and inhalation.

## Safer handling

Because of their higher flash points, Exxsol™ D60 and Isopar™ L fluids can be safer to handle than white spirit and Exxsol D40, as they belong to the GHS category 4 of combustible liquids. Exxsol D60 and Isopar L fluids are therefore not considered as flammable and do not require any flammability symbol.

### Flash point<sup>2</sup>



### Flash point in °C

Safer handling and no flammability labeling

## Addressing environmental labelling requirements

Decorative paints formulated with Exxsol D40, Exxsol D60 and Isopar L fluids do not require labeling for aquatic toxicity.

<sup>1</sup> ExxonMobil recommended OEL using Reciprocal Calculation Procedure (A method for calculating Occupational Exposure Limits (OELs) for hydrocarbon solvent mixtures based on the concentrations of the hydrocarbons present, and on their individual OELs.)

<sup>2</sup> Calculated - Fluids at a glance 2015 Asia Pacific

## Tap into our expert resources

By taking advantage of the experience of ExxonMobil technical experts, a formulation upgrade can proceed more smoothly than one might expect. Whether you consult an expert or use the Product Selector, we can help you navigate our product portfolio and find the appropriate solvent to meet your specific production and technical requirements, performance demands, and local safety, health and environmental (SHE) regulations. In short, we help you find solutions so your business can perform better.

|                                                                                                                                                                                                                                                          |                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Preferred supplier<br/>↓<br/>your ExxonMobil solvent expert</p>                                                                                                                                                                                       | <p>Preferred product<br/>↓<br/>the right solvent for your coatings</p>                                                                                                                                     |
| <ul style="list-style-type: none"><li>▪ Science-based product expertise</li><li>▪ Industry and local market knowledge</li><li>▪ 50 years of experience in solvents</li><li>▪ Up-to-date regulations (SHE) guidance</li><li>▪ Long-term support</li></ul> | <ul style="list-style-type: none"><li>▪ Wide-ranging portfolio</li><li>▪ Availability in every region</li><li>▪ Product consistency</li><li>▪ Reliable supply source</li><li>▪ Ease of logistics</li></ul> |

## Get advice from the experts

ExxonMobil solvent experts can provide guidance and expert advice on the following:

|                                                                                                                         |                                                                                                                              |                                                                                                                |                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Upgrading your<br/>formulation</p> |  <p>Safe and efficient<br/>product use</p> |  <p>Local<br/>regulations</p> |  <p>Safety, Health and<br/>Environmental issues</p> |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|

If more assistance is needed during the product development process, ExxonMobil solvent experts can provide additional technical support, which can include product performance references, samples for lab tests, guidance during trials, and follow-up evaluation of product quality.



### Technical question?

Connect directly with our technical experts at  
[exxonmobilchemical.com/AnswerPerson](https://exxonmobilchemical.com/AnswerPerson)



For more information please visit:  
[exxonmobilchemical.com](https://exxonmobilchemical.com)

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