

# Safety Data Sheet

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product identifier

#### Havoline XLI (CL00)

**Product Number(s):** 219350, 832765

**Country Registration:**

Denmark: PR-1773719

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

#### Identified Uses:

Formulation & (re)packing of substances and mixtures

Use as antifreeze/coolant

### 1.3 Details of the supplier of the safety data sheet

YX Smørelie A/S

Buddingevej 195

DK-2860 Søborg

Kundecenter: +45 70 11 56 78

Denmark

Web: yxlube.dk

email : sales@yxlube.dk

### 1.4 Emergency telephone number

#### Transportation Emergency Response

Europe: 0044/(0)18 65 407333

#### Health Emergency

Europe: 0044/(0)18 65 407333

Poison Control Centre Denmark: 0045/ 82 12 12 12

#### Product Information

Technical Information: 0045/70 11 56 78

## SECTION 2 HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

**CLP CLASSIFICATION:** Reproductive toxicant (developmental): Category 2, H361D.

### 2.2 Label elements

Under the criteria of Regulation (EC) No 1272/2008 (CLP):



**Signal Word:** Warning

## HAZARD STATEMENTS:

**Health Hazards:** Suspected of damaging the unborn child (H361D).

- contains: Sodium 2-ethylhexanoate

## PRECAUTIONARY STATEMENTS:

**Prevention:** Obtain special instructions before use (P201). Wear protective gloves/protective clothing/eye protection/face protection (P280).

**Response:** IF exposed or concerned: Get medical advice/attention (P308+P313).

**Disposal:** Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).

### 2.3 Other hazards

This product is not, or does not contain, a substance that is a potential PBT or a vPvB.

## SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

### 3.2 Mixtures

This material is a mixture.

| COMPONENTS              | CAS NUMBER | EC NUMBER | REGISTRATION NUMBER | CLP CLASSIFICATION  | AMOUNT              |
|-------------------------|------------|-----------|---------------------|---|---------------------|
| Sodium 2-ethylhexanoate | 19766-89-3 | 243-283-8 | Exempt              | Repr. 2/H361D   | 10 - < 25 %weight   |
| Methyl-1H-benzotriazole | 29385-43-1 | 249-596-6 | 01-2119979081-35    | Aquatic Chronic 2/H411; Acute Tox. 4/H302                             | 1 - < 2.5 %weight   |
| Imidazole               | 288-32-4   | 206-019-2 | 01-2119485825-24    | Eye Dam. 1/H318; Acute Tox. 4/H302; Repr. 1B/H360; Skin Corr. 1C/H314 | 0.1 - < 0.3 %weight |

The full text of all CLP H-statements is shown in Section 16.

## SECTION 4 FIRST AID MEASURES

### 4.1 Description of first aid measures

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

### 4.2 Most important symptoms and effects, both acute and delayed

#### IMMEDIATE SYMPTOMS AND HEALTH EFFECTS

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin is not expected to be harmful.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled.

**DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS:** Contains material that may cause adverse reproductive effects based on animal data.

See Section 11 for additional information. Risk depends on duration and level of exposure.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

Not applicable.

### **SECTION 5 FIRE FIGHTING MEASURES**

#### **5.1 Extinguishing media**

Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

#### **5.2 Special hazards arising from the substance or mixture**

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Nitrogen, Sodium .

#### **5.3 Advice for firefighters**

This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Eliminate all sources of ignition in vicinity of spilled material. Refer to Sections 5 and 8 for more information.

#### **6.2 Environmental precautions**

Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater.

#### **6.3 Methods and material for containment and cleaning up**

Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil and dispose of in a manner consistent with applicable requirements. Place other contaminated materials in disposable containers and dispose of in a manner consistent with applicable requirements. Report spills to local authorities as appropriate or required.

#### **6.4 Reference to other sections**

See sections 8 and 13.

### **SECTION 7 HANDLING AND STORAGE**

#### **7.1 Precautions for safe handling**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling. Keep out of the reach of children.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, 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. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

## 7.2 Conditions for safe storage, including any incompatibilities

Not Applicable

## 7.3 Specific end use(s):

Formulation & (re)packing of substances and mixtures

Use as antifreeze/coolant

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

### 8.1 Control parameters

**Occupational Exposure Limits:** No applicable occupational exposure limits exist for this material or its components. Consult local authorities for appropriate values.

### 8.2 Exposure controls

#### ENGINEERING CONTROLS:

Use in a well-ventilated area.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye/Face Protection:** No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

**Skin Protection:** No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

**Respiratory Protection:** No respiratory protection is normally required.

### ENVIRONMENTAL EXPOSURE CONTROLS:

See relevant Community environmental protection legislation or the Annex, as applicable.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention:** the data below are typical values and do not constitute a specification.

### 9.1 Information on basic physical and chemical properties

#### Appearance

**Color:** Colorless to yellow

**Physical State:** Liquid

**Odor:** Faint or Mild

**Odor Threshold:** No data available

**pH:** 7.80 - 8.50; 5% volume @ 20°C (solution in water)  
**Melting Point:** Not Applicable  
**Freezing Point:** -5°C (23°F) (Typical)  
**Initial Boiling Point:** 100°C (212°F) (Estimated)  
**Flashpoint:** Not Applicable  
**Evaporation Rate:** No data available  
**Flammability (solid, gas):** Not Applicable  
**Flammability (Explosive) Limits (% by volume in air):**  
Lower: No data available Upper: No data available  
**Vapor Pressure:** No data available  
**Vapor Density (Air = 1):** No data available  
**Density:** 1.0610 kg/l @ 15°C (59°F) (Typical)  
**Solubility:** Soluble in water.  
**Partition coefficient: n-octanol/water:** No data available  
**Auto-ignition temperature:** No data available  
**Decomposition temperature:** No data available  
**Viscosity:** No data available  
**Explosive Properties:** No Data Available  
**Oxidising properties:** No Data Available

**9.2 Other Information:** No Data Available

## SECTION 10 STABILITY AND REACTIVITY

**10.1 Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**10.2 Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**10.3 Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**10.4 Conditions to Avoid:** Not applicable

**10.5 Incompatible materials to avoid:** Not applicable

**10.6 Hazardous decomposition products:** None known (None expected)

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Product Information:

**Serious Eye Damage/Irritation:** The eye irritation hazard is based on evaluation of data for product components.

**Skin Corrosion/Irritation:** The skin irritation hazard is based on evaluation of data for product components.

**Skin Sensitization:** The skin sensitization hazard is based on evaluation of data for product components.

**Acute Dermal Toxicity:** The acute dermal toxicity hazard is based on evaluation of data for product components.

**Acute Toxicity Estimate (dermal):** Not Applicable

**Acute Oral Toxicity:** The acute oral toxicity hazard is based on evaluation of data for product components.

**Acute Toxicity Estimate (oral):** Not Applicable

**Acute Inhalation Toxicity:** The acute inhalation toxicity hazard is based on evaluation of data for product components.

**Acute Toxicity Estimate (inhalation):** Not Applicable

**Germ Cell Mutagenicity:** The hazard evaluation is based on data for components or a similar material.

**Carcinogenicity:** The hazard evaluation is based on data for components or a similar material.

**Reproductive Toxicity:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Single Exposure:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Repeated Exposure:** The hazard evaluation is based on data for components or a similar material.

**Aspiration Hazard:** No data available

**Component Information:**

| <b>Serious Eye Damage/Irritation:</b> |  |
|---------------------------------------|--|
| Sodium 2-ethylhexanoate               | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole               | Based on available data, the classification criteria are not met |
| Imidazole                             | Test Result: Causes serious eye damage                           |

| <b>Skin Corrosion/Irritation:</b> |  |
|-----------------------------------|--|
| Sodium 2-ethylhexanoate           | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole           | Based on available data, the classification criteria are not met |
| Imidazole                         | Test Result: Causes severe skin burns and eye damage             |

| <b>Skin Sensitization:</b> |  |
|----------------------------|--|
| Sodium 2-ethylhexanoate    | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole    | Based on available data, the classification criteria are not met |
| Imidazole                  | Based on available data, the classification criteria are not met |

| <b>Acute Dermal Toxicity:</b> |  |
|-------------------------------|--|
| Sodium 2-ethylhexanoate       | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole       | Based on available data, the classification criteria are not met |
| Imidazole                     | Based on available data, the classification criteria are not met |

| <b>Acute Oral Toxicity:</b> |  |
|-----------------------------|--|
| Sodium 2-ethylhexanoate     | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole     | Test Qualifier: LD50<br>Test Result: 675 mg/kg<br>Species: rat   |
| Imidazole                   | Test Qualifier: LD50<br>Test Result: 970 mg/kg<br>Species: rat   |

| <b>Acute Inhalation Toxicity:</b> |  |
|-----------------------------------|--|
| Sodium 2-ethylhexanoate           | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole           | Based on available data, the classification criteria are not met |
| Imidazole                         | Based on available data, the classification criteria are not met |

| <b>Germ Cell Mutagenicity:</b> |  |
|--------------------------------|--|
| Sodium 2-ethylhexanoate        | Based on available data, the classification criteria are not met |

|                         |  |
|-------------------------|--|
| Methyl-1H-benzotriazole | Based on available data, the classification criteria are not met |
| Imidazole               | Based on available data, the classification criteria are not met |

|                         |  |
|-------------------------|--|
| <b>Carcinogenicity:</b> |  |
| Sodium 2-ethylhexanoate | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole | Based on available data, the classification criteria are not met |
| Imidazole               | Based on available data, the classification criteria are not met |

|                               |  |
|-------------------------------|--|
| <b>Reproductive Toxicity:</b> |  |
| Sodium 2-ethylhexanoate       | Protocol: Developmental Toxicity Study<br>Test Result: Suspected of damaging fertility or the unborn child if ingested based on animal data                    |
| Sodium 2-ethylhexanoate       | Protocol: OECD 415 - One-Generation Reproduction Toxicity<br>Test Result: Suspected of damaging fertility or the unborn child if ingested based on animal data |
| Methyl-1H-benzotriazole       | Based on available data, the classification criteria are not met   |
| Imidazole                     | Test Result: May damage fertility or the unborn child if ingested based on human data  |
| Imidazole                     | Test Result: May damage fertility or the unborn child if ingested  |

|  |  |
|--|--|
| <b>Specific Target Organ Toxicity - Single Exposure:</b> |  |
| Sodium 2-ethylhexanoate                                  | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole                                  | Based on available data, the classification criteria are not met |
| Imidazole  | Based on available data, the classification criteria are not met |

|  |  |
|--|--|
| <b>Specific Target Organ Toxicity - Repeated Exposure:</b> |  |
| Sodium 2-ethylhexanoate                                    | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole                                    | Based on available data, the classification criteria are not met |
| Imidazole  | Based on available data, the classification criteria are not met |

#### **ADDITIONAL TOXICOLOGY INFORMATION:**

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

### **SECTION 12 ECOLOGICAL INFORMATION**

#### **Product Information:**

##### **12.1 Toxicity**

This material is not expected to be harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

##### **12.2 Persistence and degradability**

This material is expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

##### **12.3 Bioaccumulative potential**

Bioconcentration Factor: No Data Available  
Octanol/Water Partition Coefficient: No data available

##### **12.4 Mobility in soil**

No data available.

## 12.5 Results of PBT and vPvB assessment

This product is not, or does not contain, a substance that is a potential PBT or a vPvB.

## 12.6 Other adverse effects

No other adverse effects identified.

### Component Information:

| Acute Toxicity:         |  |
|-------------------------|--|
| Sodium 2-ethylhexanoate | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole | Confidential test data   |
| Methyl-1H-benzotriazole | Confidential test data   |
| Methyl-1H-benzotriazole | Confidential test data   |
| Methyl-1H-benzotriazole | Confidential test data   |
| Imidazole               | Based on available data, the classification criteria are not met |

| Long-term Toxicity:     |  |
|-------------------------|--|
| Sodium 2-ethylhexanoate | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole | Confidential test data   |
| Imidazole               | Based on available data, the classification criteria are not met |

| Biodegradation:         |  |
|-------------------------|--|
| Sodium 2-ethylhexanoate | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole | Test Result: Not readily biodegradable                           |
| Imidazole               | Based on available data, the classification criteria are not met |

| Bioaccumulative Potential: |  |
|----------------------------|--|
| Sodium 2-ethylhexanoate    | Based on available data, the classification criteria are not met |
| Methyl-1H-benzotriazole    | No test data available   |
| Imidazole                  | Based on available data, the classification criteria are not met |

## SECTION 13 DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations. In accordance with European Waste Catalogue (E.W.C.) the codification is the following: 16 01 14

## SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

### ADR/RID

NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT

**14.1 UN number:** Not applicable

**14.2 UN proper shipping name:** Not applicable

**14.3 Transport hazard class(es):** Not applicable

**14.4 Packing group:** Not applicable

**14.5 Environmental hazards:** Not applicable

**14.6 Special precautions for user:** Not applicable



## ICAO / IATA

NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT

- 14.1 UN number: Not applicable
- 14.2 UN proper shipping name: Not applicable
- 14.3 Transport hazard class(es): Not applicable
- 14.4 Packing group: Not applicable
- 14.5 Environmental hazards: Not applicable
- 14.6 Special precautions for user: Not applicable

## IMO / IMDG

NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT

- 14.1 UN number: Not applicable
- 14.2 UN proper shipping name: Not applicable
- 14.3 Transport hazard class(es): Not applicable
- 14.4 Packing group: Not applicable
- 14.5 Environmental hazards: Not applicable
- 14.6 Special precautions for user: Not applicable
- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable

## SECTION 15 REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture REGULATORY LISTS SEARCHED:

- 01=EU Directive 76/769/EEC: Restrictions on the marketing and use of certain dangerous substances.
- 02=EU Directive 90/394/EEC: Carcinogens at work.
- 03=EU Directive 92/85/EEC: Pregnant or breastfeeding workers.
- 04=EU Directive 96/82/EC (Seveso II): Article 9.
- 05=EU Directive 96/82/EC (Seveso II): Articles 6 and 7.
- 06=EU Directive 98/24/EC: Chemical agents at work.
- 07=EU Directive 2004/37/EC: On the protection of workers.
- 08=EU Regulation EC No. 689/2008: Annex 1, Part 1.
- 09=EU Regulation EC No. 689/2008: Annex 1, Part 2.
- 10=EU Regulation EC No. 689/2008: Annex 1, Part 3.
- 11=EU Regulation EC No. 850/2004: Prohibiting and restricting persistent organic pollutants (POPs).
- 12=EU REACH, Annex XVII: Restrictions on manufacture, placing on the market and use of certain dangerous substances, mixture & article.
- 13=EU REACH, Annex XIV: Candidate List of Substances of Very High Concern for Authorization (SVHC).

The following components of this material are found on the regulatory lists indicated.

Imidazole 03, 06, 12

### CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AIIIC (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

### COUNTRY REGISTRATION:

Denmark: YES (1773719)

### 15.2 Chemical safety assessment

Yes

## SECTION 16 OTHER INFORMATION

**REVISION STATEMENT:** SECTION 09 - Physical/Chemical Properties information was modified.

SECTION 15 - Regulatory Information information was modified.

**Revision Date:** March 05, 2021

**Full text of CLP H-statements:**

- H411; Toxic to aquatic life with long lasting effects
- H318; Causes serious eye damage
- H302; Harmful if swallowed
- H360; May damage fertility or the unborn child
- H361d; Suspected of damaging the unborn child
- H314; Causes severe skin burns and eye damage

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

|                                  |  |
|----------------------------------|--|
| TLV - Threshold Limit Value      | TWA - Time Weighted Average            |
| STEL - Short-term Exposure Limit | PEL - Permissible Exposure Limit       |
| CVX - Chevron                    | CAS - Chemical Abstract Service Number |
| NQ - Not Quantifiable            |  |

Prepared according to the EU Regulation 1907/2006 (as amended) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**

**Annex**

Use as antifreeze/coolant - Industrial

|   |   |
|---|---|
| <b>Section 1</b>  |   |
| <b>Title</b>  |   |
| Use as antifreeze/coolant   |   |
| <b>Use Descriptor</b>   |   |
| Sector(s) of Use  | 3   |
| Process Categories  | 1, 2, 3, 4, 8a, 8b, 9   |
| Environmental Release Categories  | 7   |
| Specific Environmental Release Category   | Not Applicable  |
| <b>Processes, tasks, activities covered</b>   |   |
| Covers general use of coolant in vehicles in closed systems. Includes the filling and draining of containers and operation of enclosed machinery and associated maintenance and storage activities. |   |
| <b>Assessment Method</b>  |   |
| See Section 3.  |   |
| <b>Section 2 Operational conditions and risk management measures</b>  |   |
| <b>Section 2.1 Control of worker exposure</b>   |   |
| <b>Product characteristics</b>  |   |
| Physical form of product  | Liquid, vapor pressure 0.004 kPa at 20°C  |
| Vapour Pressure   | See above   |
| Concentration of substance in product   | Covers percentage substance in the product up to 100 % (unless stated differently). [G13] |

|   |                                 |
|---|---------------------------------|
| Amount used                                     | Not Applicable                  |
| Frequency and duration of use/exposure          | Covers up to ... (days/week): 5 |
| Human factors not influenced by risk management | None identified                 |
| Other Operational Conditions affecting exposure | Not Applicable                  |

### Contributing Scenarios Specific Risk Management Measures and Operating Conditions

**[PROC 1] Use in closed process, no likelihood of exposure.**

Covers more than 4 hours (unless stated differently).  
 Handle substance within a closed system. [E47]  
 Use suitable eye protection. [PPE26]

**[PROC 2] Use in closed process with occasional controlled exposure.**

Covers more than 4 hours (unless stated differently).  
 Handle substance within a closed system. [E47]  
 Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]  
 Use suitable eye protection. [PPE26]

**[PROC 3] Use in closed batch process (synthesis or formulation).**

Covers more than 4 hours (unless stated differently).  
 Ensure good ventilation at the workstation.  
 Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]  
 Use suitable eye protection. [PPE26]

**[PROC 4] Use in batch or other process (synthesis) where opportunity for exposure arises.**

Covers more than 4 hours (unless stated differently).  
 Provide enhanced general ventilation by mechanical means. [E48]  
 Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]  
 Use suitable eye protection. [PPE26]

**[PROC 8a] Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.**

Avoid carrying out activities involving exposure for more than 4 hours. [OC28]  
 Provide extract ventilation to points where emissions occur. [E54]  
 Effectiveness (of a measure): 90%  
 Use suitable eye protection. [PPE26]  
 If above technical/organisational control measures are not feasible, then adopt following PPE:. [PPE30]  
 Wear suitable respiratory protection.  
 Effectiveness (of a measure): 95%

**[PROC 8b] Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.**

Covers more than 4 hours (unless stated differently).  
 Provide extract ventilation to points where emissions occur. [E54]  
 Effectiveness (of a measure): 90%  
 Use suitable eye protection. [PPE26]  
 If above technical/organisational control measures are not feasible, then adopt following PPE:. [PPE30]  
 Wear suitable respiratory protection.  
 Effectiveness (of a measure): 95%

|  |
|--|
| <b>[PROC 9] Transfer of substance or preparation into small containers (dedicated filling line, including weighing).</b><br>Covers more than 4 hours (unless stated differently).<br>Provide enhanced general ventilation by mechanical means. [E48]<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]<br>Use suitable eye protection. [PPE26] |
| <b>Section 2.2 Control of environmental exposure</b>   |
| <b>Product characteristics</b><br>Not Applicable   |
| <b>Amounts used</b><br>Maximum daily site tonnage (kg/day) [A4]: 2000  |
| <b>Frequency and duration of use</b><br>Emission Days (days/year) [FD4]: 300   |
| <b>Environmental factors not influenced by risk management</b><br>Local freshwater dilution factor [EF1]: 10<br>Local marine water dilution factor [EF2]: 100  |
| <b>Other given operational conditions affecting environmental exposure</b><br>Not Applicable   |
| <b>Technical conditions and measures at process level (source) to prevent release</b><br>Common practices vary across sites thus conservative process release estimates used. [TCS1]   |
| <b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b><br>Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]<br>User site assumed to be separate chemical and foul/rain water and be equipped with a WWTP. [ENVT15]   |
| <b>Organisation measures to prevent/limit release from site</b><br>Do not apply industrial sludge to natural soils. [OMS2]<br>Sludge should be incinerated, contained or reclaimed. [OMS3]   |
| <b>Conditions and measures related to municipal sewage treatment plant</b><br>Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000   |
| <b>Conditions and measures related to external treatment of waste for disposal</b><br>External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]   |
| <b>Conditions and measures related to external recovery of waste</b><br>External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]   |
| <b>Section 3 Exposure Estimation</b>   |
| <b>3.1. Health</b><br>The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.  |
| <b>3.2. Environment</b><br>Used ECETOC TRA model. [EE1]  |
| <b>Section 4 Guidance to check compliance with the Exposure Scenario</b>   |
| <b>4.1. Health</b><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]  |
| <b>4.2. Environment</b><br>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. [DSU1]   |

Use as antifreeze/coolant - Professional

|                  |
|------------------|
| <b>Section 1</b> |
| <b>Title</b>     |

|  |  |
|--|--|
| Use as antifreeze/coolant  |  |
| <b>Use Descriptor</b>  |  |
| Sector(s) of Use   | 3  |
| Process Categories   | 1, 2, 3, 4, 8a, 9  |
| Environmental Release Categories   | 9a, 9b   |
| Specific Environmental Release Category  | Not Applicable   |
| <b>Processes, tasks, activities covered</b>  |  |
| Covers handling and dilution of functional fluids  |  |
| <b>Assessment Method</b>   |  |
| See Section 3.   |  |
| <b>Section 2 Operational conditions and risk management measures</b>   |  |
| <b>Section 2.1 Control of worker exposure</b>  |  |
| <b>Product characteristics</b>   |  |
| Physical form of product   | Liquid, vapor pressure 0.004 kPa at 20°C   |
| Vapour Pressure  | See above  |
| Concentration of substance in product  | Covers percentage substance in the product up to 100 % (unless stated differently). [G13 ] |
| Amount used  | Not Applicable   |
| Frequency and duration of use/exposure   | Covers up to ... (days/week): 5  |
| Human factors not influenced by risk management  | None identified  |
| Other Operational Conditions affecting exposure  | Not Applicable   |
| <b>Contributing Scenarios Specific Risk Management Measures and Operating Conditions</b>   |  |
| <p><b>[PROC 1] Use in closed process, no likelihood of exposure.</b><br/> Covers more than 4 hours (unless stated differently).<br/> Handle substance within a closed system. [E47]<br/> Use suitable eye protection. [PPE26]</p> <p><b>[PROC 2] Use in closed process with occasional controlled exposure.</b><br/> Covers more than 4 hours (unless stated differently).<br/> Provide enhanced general ventilation by mechanical means. [E48]<br/> Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]<br/> Use suitable eye protection. [PPE26]</p> <p><b>[PROC 3] Use in closed batch process (synthesis or formulation).</b><br/> Covers more than 4 hours (unless stated differently).<br/> Ensure good ventilation at the workstation.<br/> Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]<br/> Use suitable eye protection. [PPE26]</p> <p><b>[PROC 4] Use in batch or other process (synthesis) where opportunity for exposure arises.</b><br/> Covers daily exposure up to 8 hours.<br/> Use suitable eye protection. [PPE26]</p> <p><b>[PROC 8a] Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.</b></p> |  |

|   |
|---|
| Avoid carrying out activities involving exposure for more than 1 hour. [OC27]<br>Provide extract ventilation to points where emissions occur. [E54]<br>Effectiveness (of a measure): 80%<br>Use suitable eye protection. [PPE26]<br>If above technical/organisational control measures are not feasible, then adopt following PPE.: [PPE30]<br>Wear suitable respiratory protection.<br>Effectiveness (of a measure): 80%<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17] |
| <b>[PROC 9] Transfer of substance or preparation into small containers (dedicated filling line, including weighing).</b>  |
| Avoid carrying out activities involving exposure for more than 4 hours. [OC28]<br>Provide enhanced general ventilation by mechanical means. [E48]<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]<br>Use suitable eye protection. [PPE26]   |
| <b>Section 2.2 Control of environmental exposure</b>  |
| <b>Product characteristics</b>  |
| Not Applicable  |
| <b>Amounts used</b>   |
| Maximum daily site tonnage (kg/day) [A4]: 1000  |
| <b>Frequency and duration of use</b>  |
| Emission Days (days/year) [FD4]: 300  |
| <b>Environmental factors not influenced by risk management</b>  |
| Local freshwater dilution factor [EF1]: 10<br>Local marine water dilution factor [EF2]: 100   |
| <b>Other given operational conditions affecting environmental exposure</b>  |
| Not Applicable  |
| <b>Technical conditions and measures at process level (source) to prevent release</b>   |
| Common practices vary across sites thus conservative process release estimates used. [TCS1]   |
| <b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>   |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]<br>User site assumed to be separate chemical and foul/rain water and be equipped with a WWTP. [ENVT15]   |
| <b>Organisation measures to prevent/limit release from site</b>   |
| Do not apply industrial sludge to natural soils. [OMS2]<br>Sludge should be incinerated, contained or reclaimed. [OMS3]   |
| <b>Conditions and measures related to municipal sewage treatment plant</b>  |
| Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000  |
| <b>Conditions and measures related to external treatment of waste for disposal</b>  |
| External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]  |
| <b>Conditions and measures related to external recovery of waste</b>  |
| External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]  |
| <b>Section 3 Exposure Estimation</b>  |
| <b>3.1. Health</b>  |
| The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.   |
| <b>3.2. Environment</b>   |
| Used ECETOC TRA model. [EE1]  |
| <b>Section 4 Guidance to check compliance with the Exposure Scenario</b>  |
| <b>4.1. Health</b>  |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should  |

ensure that risks are managed to at least equivalent levels. [G23]

#### 4.2. 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. [DSU1]

#### Formulation & (re)packing of substances and mixtures - Industrial

| Section 1  |   |
|--|---|
| <b>Title</b>   |   |
| Formulation & (re)packing of substances and mixtures   |   |
| <b>Use Descriptor</b>  |   |
| Sector(s) of Use   | 3   |
| Process Categories   | 1, 2, 3, 4, 5, 8a, 8b, 9  |
| Environmental Release Categories   | 2   |
| Specific Environmental Release Category  | Not Applicable  |
| <b>Processes, tasks, activities covered</b>  |   |
| Covers general use of coolant in vehicles in closed systems. Includes the filling and draining of containers and operation of enclosed machinery and associated maintenance and storage activities.  |   |
| <b>Assessment Method</b>   |   |
| See Section 3.   |   |
| Section 2 Operational conditions and risk management measures  |   |
| Section 2.1 Control of worker exposure   |   |
| <b>Product characteristics</b>   |   |
| Physical form of product   | Liquid, vapor pressure 0.004 kPa at 20°C  |
| Vapour Pressure  | See above   |
| Concentration of substance in product  | Covers percentage substance in the product up to 100 % (unless stated differently). [G13] |
| Amount used  | Not Applicable  |
| Frequency and duration of use/exposure   | Covers up to ... (days/week): 5   |
| Human factors not influenced by risk management  | None identified   |
| Other Operational Conditions affecting exposure  | Not Applicable  |
| Contributing Scenarios Specific Risk Management Measures and Operating Conditions  |   |
| <b>[PROC 1] Use in closed process, no likelihood of exposure.</b><br>Covers more than 4 hours (unless stated differently).<br>Handle substance within a closed system. [E47]<br>Use suitable eye protection. [PPE26]   |   |
| <b>[PROC 2] Use in closed process with occasional controlled exposure.</b><br>Covers more than 4 hours (unless stated differently).<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]  |   |
| <b>[PROC 3] Use in closed batch process (synthesis or formulation).</b><br>Covers more than 4 hours (unless stated differently).<br>Handle substance within a closed system. [E47]<br>Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17] |   |

Use suitable eye protection. [PPE26]

**[PROC 4] Use in batch or other process (synthesis) where opportunity for exposure arises.**

Covers more than 4 hours (unless stated differently).

Provide enhanced general ventilation by mechanical means. [E48]

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]

Use suitable eye protection. [PPE26]

**[PROC 5] Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact).**

Avoid carrying out activities involving exposure for more than 4 hours. [OC28]

Provide enhanced general ventilation by mechanical means. [E48]

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]

**[PROC 8a] Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.**

Avoid carrying out activities involving exposure for more than 1 hour. [OC27]

Provide extract ventilation to points where emissions occur. [E54]

Effectiveness (of a measure): 90%

Use suitable eye protection. [PPE26]

If above technical/organisational control measures are not feasible, then adopt following PPE:. [PPE30]

Wear suitable respiratory protection.

Effectiveness (of a measure): 95%

**[PROC 8b] Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.**

Avoid carrying out activities involving exposure for more than 4 hours. [OC28]

Provide extract ventilation to points where emissions occur. [E54]

Effectiveness (of a measure): 90%

Use suitable eye protection. [PPE26]

If above technical/organisational control measures are not feasible, then adopt following PPE:. [PPE30]

Wear suitable respiratory protection.

Effectiveness (of a measure): 95%

**[PROC 9] Transfer of substance or preparation into small containers (dedicated filling line, including weighing).**

Covers more than 4 hours (unless stated differently).

Provide enhanced general ventilation by mechanical means. [E48]

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]

Use suitable eye protection. [PPE26]

**Section 2.2 Control of environmental exposure**

**Product characteristics**

Not Applicable

**Amounts used**

Maximum daily site tonnage (kg/day) [A4]: 4545

**Frequency and duration of use**

Emission Days (days/year) [FD4]: 300

**Environmental factors not influenced by risk management**

Local freshwater dilution factor [EF1]: 10

Local marine water dilution factor [EF2]: 100

**Other given operational conditions affecting environmental exposure**

Not Applicable

**Technical conditions and measures at process level (source) to prevent release**

Common practices vary across sites thus conservative process release estimates used. [TCS1]

**Technical onsite conditions and measures to reduce or limit discharges, air emissions and**



|   |
|---|
| <b>releases to soil</b>   |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]<br>User site assumed to be separate chemical and foul/rain water and be equipped with a WWTP. [ENVT15] |
| <b>Organisation measures to prevent/limit release from site</b>   |
| Do not apply industrial sludge to natural soils. [OMS2]<br>Sludge should be incinerated, contained or reclaimed. [OMS3]   |
| <b>Conditions and measures related to municipal sewage treatment plant</b>  |
| Assumed domestic sewage treatment plant flow (m3/d) [STP5]: 2000  |
| <b>Conditions and measures related to external treatment of waste for disposal</b>  |
| External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3]  |
| <b>Conditions and measures related to external recovery of waste</b>  |
| External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]  |
| <b>Section 3 Exposure Estimation</b>  |
| <b>3.1. Health</b>  |
| The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.         |
| <b>3.2. Environment</b>   |
| Used ECETOC TRA model. [EE1]  |
| <b>Section 4 Guidance to check compliance with the Exposure Scenario</b>  |
| <b>4.1. Health</b>  |
| Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]                                   |
| <b>4.2. Environment</b>   |
| 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. [DSU1] |