**Safety Data Sheet**

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

### 1.1 Product Identifier

| | |
|---|---|
| **Material Name:** | **CityDiesel, 0 - 7 % RME, may be provided with colour and marker** |
| **REACH Registration No.:** | 01-2119480137-38 |
| **Synonyms:** | Diesel, Diesel MK1 Bio 0 - 7 %, MK1 B0, MK1 B7, DBB7, DFB7, 41142 BF AGO 10PPMS B7 UDY UMK CITY, 41143 BF AGO 10PPMS B7 DYE CITY, Heating oil Environmental 0,001% S, EM1 |

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

**Product Use:** Fuel for diesel engines. Heating. Bunker Fuel.
Distribution of substance, industrial
Use as a fuel, industrial
Use as a fuel, professional
Use as a fuel, consumer

**Uses Advised Against:** Applications that are not registered and risk assessed.

### 1.3 Details of the supplier of the substance or mixture

**Manufacturer/Supplier:** Swea Energi AB
Nygatan 10 C
434 30 Kungsbacka
**Telephone:** +46 (0) 20 450 800
**Email Contact for MSDS:** info@sweaenergi.se

### 1.4 Emergency Telephone Number:

112 SOS Alarm,
Swedish Poisons Information Centre: +46 (0)8 331231

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of substance or mixture

**Product definition** : Mixture

| **Regulation (EC) No 1272/2008 (CLP)** | |
|---|---|
| **Hazard classes / Hazard categories** | **Hazard Statement** |
| Aspiration hazard, Category 1 | H304 |
| Skin corrosion/irritation, Category 2 | H315 |
| Specific target organ toxicity – Single exposure | H336 |
| Chronic hazards to the aquatic environment, Category 2 | H411 |

Classification triggering components: Contains petroleum distillates.

**2.2 Label Elements**

**Labeling according to Regulation (EC) No 1272/2008**

**Symbols:**

**Signal word:** DANGER

**CLP Hazard Statements:**

HEALTH HAZARDS:
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H336: May cause drowsiness or dizziness

MILJÖFARAR:
H411: Giftig för vattenlevande organismer med långtidseffekter

**CLP Precautionary statements**

PREVENTION:
P260; P264; P271; P273; P280

RESPONSE:
P301+P310; P302+P352; P304+P340; P312; P321; P362; P391

STORAGE:
P403+P233; P405

For more information regarding CLP Precautionary statements, see chapter 16.

**2.3 Other Hazards**

**Health Hazards:** Slightly irritating to respiratory system. Irritating to skin. Harmful: may cause lung damage if swallowed.

**Safety Hazards**: Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space. Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding auto-ignition temperature, where vapour concentrations are within the flammability range. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire. May ignite on surfaces at temperatures above auto-ignition temperature.

**Environmental Hazards:** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

**Other information:** This product is intended for use in closed systems only.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substance**

**3.2 Mixtures**

**Hazardous Components**

**Classification of components according to (EG) nr 1272/2008**

| Chemical Name | CAS nr. | EINECS | REACH Registration No. | Conc. vol % |
|---|---|---|---|---|
| Distillates (petroleum) hydrotreated light | | 931-250-7 | 01-211948137-38 | ≥93 |
| Fatty acid methyl ester (FAME) | 85586-25-0 | 287-828-8 | 01-2119471664-32 | 0 - 7 |

| Chemical Name | Hazard Class & Category | Hazard Statement |
|---|---|---|
| Distillates (petroleum) hydrotreated light | Asp.Tox, 1; Skin Irrit, 2;Aquatic Chronic, 2 | H304; H315; H336; H411 |
| Fatty acid methyl ester (FAME) | - | - |

Additional Information: Colours and markers can be used to indicate tax status and prevent fraud.

## 4. FIRST AID MEASURES

### 4.1 Description of First Aid Measures

**Inhalation:** Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

**Skin contact**: Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

**Eye contact:** Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persists, transport to the nearest medical facility for additional treatment.

**Ingestion:** If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 37 °C, shortness of breath, chest congestion or continued coughing or wheezing. Give nothing by mouth.

**4.2 Most important symptoms/effects, acute & delayed**: If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.

**4.3 Indication of immediate medical attention and special treatment needed**: Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

| | |
|---|---|
| **5.1 Extinguishing Media**: | Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. |
| **Unsuitable Extinguishing Media**: | Do not use water in a jet. |
| **5.2 Special hazards arising from substance or mixture**: | Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Oxides of sulphur. Unidentified organic and inorganic compounds. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible. |
| **5.3 Advice for fire-fighters**: | Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space. |
| **Additional Advice:** | Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. |

## 6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| **6.1 Personal Precautions, Protective Equipment and Emergency Procedures**: | May ignite on surfaces at temperatures above auto-ignition temperature. Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter. |
| **6.2 Environmental Precautions**: | Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. |
| **6.3 Methods and Material for Containment** | For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.<br>For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do |

| | |
|---|---|
| | not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations. |
| **Additional Advice:** | Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26. |

## 7. HANDLING AND STORAGE

| | |
|---|---|
| **7.1 Precautions for Safe Handling**: | Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Prevent spillages. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to the product supplier.<br><br>Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid inhaling vapour and/or mists. Never siphon by mouth. Avoid contact with the skin.<br>When using do not eat or drink. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Earth all equipment. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire. |
| **7.2 Conditions for safe storage, including any incompatibilities**: | Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Take suitable precautions when opening sealed containers, as |

| | |
|---|---|
| | pressure can build up during storage. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. |
| **7.3 Specific End Uses**: | Please refer to Ch16 and/or the annexes for the registered uses under REACH. |
| **Additional Information:** | Exposure to this product should be reduced as low as reasonably practicable. Ensure that all local regulations regarding handling and storage facilities are followed. |
| **Product Transfer:** | Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling. |
| **Recommended Materials**: | For containers, or container linings use carbon steel and low alloy steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. For container linings the following may also be used: Unplastisized polyvinyl chloride (U-PVC), Fluoropolymers (PTFE), Polyvinylidenefluoride (PVDF), Polyetheretherketone (PEEK), Polyamide (PA-11). For seals and gaskets use: Fluoroelastomer (FKM), Viton A, and Viton B, Nitrile butadiene (NBR), Buna-N. For coating (paint) materials use: High build, amine adduct-cured epoxy. |
| **Unsuitable Materials**: | Use mild steel or stainless steel containers or container linings. Aluminium may also be used for applications where it poses an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which has been specifically tested for their compatibility with this product. For seals and gaskets use: graphite, PTFE, Viton A, Viton B. |
| **Container Advice**: | Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control Parameters

**Occupational Exposure Limits**
Not established

**Biological Exposure Levels (BEI)**
No biological limit allocated.

**Derived No Effect Level (DNEL)**

| Chemical name | Source | Limit level mg/m3 |
|---|---|---|
| Diesel MK1 | AFS 2011:18 | 350 |

Limit level: Occupational exposure limit for exposure during a working day (8 hours).

PNEC (Predicted No-Effect Concentration) related information: Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

**8.2 Exposure Controls General Information**: All components above are not statutory limits in the limit value list. Some of them are approximate values that can be used in preventive safety work and the assessment of the workplace. These values represent a maximum acceptable total content of hydrocarbons in the air, as recommended in the Swedish occupational exposure limit value list from the Work Environment Authority, and should be used in the same way as the values in the threshold list. In addition to the occupational exposure limits for individual ingredients in the product of the above list, see the Work

**Occupational Exposure Controls**

**Personal Protective Equipment**: Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

**Eye Protection**: Chemical splash goggles (chemical monogoggles). Approved to EU Standard EN166.

**Hand Protection**: Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should

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|---|---|
| | be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.<br>Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable. |
| **Body protection**: | Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing). |
| **Respiratory Protection**: | If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. All respiratory protection equipment and use must be in accordance with local regulations.<br>Select a filter suitable for combined particulate/organic gases and vapours (boiling point >65 °C) meeting EN141. |
| **Monitoring Methods**: | Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. |
| **Environmental Exposure Controls** | |
| **Environmental exposure control measures**: | Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. |
| **Consumer Exposure Controls** | |
| **Exposure Control Measures for Consumers:** | Do not ingest. If swallowed then seek immediate medical assistance. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

According to Swedish Standard SS 15 54 35:2011

| | |
|---|---|
| **Appearance:** | Clear liquid, colourless, yellow or green |
| **Odour:** | Hydrocarbon |
| **Odour threshold:** | - |
| **pH:** | Not applicable |
| **Melting point/freezing point:** | < -35 °C |
| **Initial boiling point and boiling range:** | 180 – 340°C |
| **Flash point:** | >60 °C |
| **Evaporation rate:** | - |
| **Flammability (solid, gas)** | - |
| **Upper/lower flammability or explosive limits:** | - |
| **Vapour pressure, at 37,8 °C:** | <0,5 kPa |
| **Vapour density:** | - |
| **Relative density:** | 810 - 830 kg/m3 |
| **Solubility(ies):** | Not solubility |
| **Partition coefficient: n-octanol/water:** | - |
| **Auto-ignition temperature:** | > 240°C |
| **Decomposition temperature:** | - |
| **Kinematics Viscosity, 40°C** | 1,5 - 4 mm2/s |
| **Explosive properties:** | Not considered to be explosive |
| **Oxidising properties:** | Not considered to oxidise |

### 9.2 Other Information

**Other Information**: Not applicable.

## 10. STABILITY AND REACTIVITY

**10.1 Reactivity:** The product is not considered to be reactive.

**10.2 Chemical Stability:** Stable under normal conditions of use.

**10.3 Possibility of Hazardous Reactions:** Under normal conditions of storage and use, there are no dangerous reactions.

**10.4 Conditions to Avoid:** Avoid heat, sparks, open flames and other ignition sources.

| | |
|---|---|
| | Prevent the occurrence of static electricity |
| **10.5 Incompatible Materials:** | Strong oxidising agents. |
| **10.6 Hazardous Decomposition Product:** | Hazardous decomposition products occur under normal storage conditions. On combustion, toxic gases are formed depending on combustion conditions, such as carbon dioxide and carbon monoxide. |

## 11. TOXIKOLOGISK INFORMATION

### 11.1 Information on Toxicological effects

| | |
|---|---|
| **Basis for Assessment:** | Information given is based on product data, knowledge of the components and the toxicology of similar products. |
| **Acute Oral Toxicity:** | Low toxicity: LD50 >5000 mg/kg, Rat |
| **Acute Dermal Toxicity:** | Low toxicity: LD50 >2000 mg/kg, Rabbit. |
| **Acute Inhalation Toxicity:** | Low toxicity: LC50 >5 mg/l/4 h, Rat. |
| **Skin Corrosion/Irritation:** | Irritating to skin. |
| **Serious Eye Damage/Irritation:** | Expected to be irritating. |
| **Respiratory Irritation:** | Inhalation of vapours or mists may cause irritation to the respiratory system. |
| **Respiratory or Skin Sensitisation:** | Not a skin sensitizer. |
| **Aspiration Hazard:** | Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal. |
| **Germ Cell Mutagenicity:** | Not considered a mutagenic hazard. |
| **Carcinogenicity:** | Not classified as a carcinogen. |
| **Reproductive and Developmental Toxicity:** | Not expected to impair fertility. Not classified as a developmental toxicant. |

## 12. ECOLOGICAL INFORMATION

Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been conducted in a variety of hydrocarbon blends and streams but not those containing additives.

| | |
|---|---|
| **12.1 Acute Toxicity** | The product is toxic to aquatic organisms and may cause adverse effects in aquatic environment. Acute toxicity to aquatic organisms is 1-100 mg/l. |
| **12.2 Persistence and degradability:** | Major constituents are expected to be biodegradable. The volatile constituents are oxidized rapidly by photochemical reactions in the air. |
| **12.3 Bioaccumulative Potential:** | Contains constituents with the potential to bioaccumulate. |
| **12.4 Mobility:** | Floats on water. Contains volatile constituents evaporate within a day of water or soil surface. The product can penetrate soil and contaminate groundwater. |
| **12.5 Results of PBT and vPvB assessment:** | The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB. |
| **12.6 Other adverse effects:** | No other known harmful effects. |

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste Treatment Methods

| | |
|---|---|
| **Material Disposal:** | Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. |
| **Container Disposal:** | Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations. |
| **Local Legislation:** | EU Waste Disposal Code (EWC): |

| | |
|---|---|
| | 13 07 01 Fuel oil and diesel<br>13 07 03 Other fuels (including mixtures)<br>The number given to waste is associated with the appropriate usage. The user must decide if their particular use results in another waste code being assigned. Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with. |

## 14. TRANSPORT INFORMATION

| **ADR/RID** | **Land transport** |
|---|---|
| UN No: | 1202 |
| UN Proper Shipping Name: | DIESEL FUEL |
| Transport Hazard Class: | 3 |
| Packing group: | III |
| Environmental Hazard: | Yes |

| **ADN** | **Inland waterways transport** |
|---|---|
| UN No: | 1202 |
| UN Proper Shipping Name: | DIESEL FUEL |
| Transport Hazard Class: | 3 |
| Packing group: | III |
| Environmental Hazard: | Yes |

| **IMDG** | **Sea transport** |
|---|---|
| UN No: | 1202 |
| UN Proper Shipping Name: | DIESEL FUEL. Marine pollutant. |
| Transport Hazard Class: | 3 |
| Packing group: | III |
| Environmental Hazard: | Yes |

| **IATA** | **Air transport** |
|---|---|
| UN No: | 1202 |
| UN Proper Shipping Name: | DIESEL FUEL |
| Transport Hazard Class: | 3 |
| Packing group: | III |
| Environmental Hazard: | Yes |

**Sea (Annex II of MARPOL 73/78 and the IBC code)**

| | |
|---|---|
| Pollution Category | Not applicable |
| Ship Type | Not applicable |
| Product Name | Not applicable |
| Special Precaution | Not applicable |
| **Additional Information**: | MARPOL Annex I rules apply for bulk shipments by sea.<br>MARPOL Annex II not applicable |

## 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

| | |
|---|---|
| **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture** | EU Regulation (EC) No 1907/2006 (REACH).<br>EU Regulation (EC) No 1272/2008 Classification, labelling and packaging of chemical substances and mixtures (CLP). |
| **15.2 Chemical Safety Assessment** | A Chemical Safety Assessment was performed for this substance. |

## 16. OTHER INFORMATION

**CLP Hazard Statements:**

H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H336: May cause drowsiness or dizziness
H411: Toxic to aquatic life with long lasting effects

**CLP Precautionary statements:**

P260: Do not breathe dust/fume/gas/vapours/spray
P264: Wash hands thoroughly after handling
P271:Use only outdoors or in a well-ventilated area
P273: Avoid release to the environment
P280: Wear protective gloves/clothing/eye protection
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352: IF ON SKIN: Wash with plenty of soap and water
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312: Call a POISON CENTER or doctor/physician if you feel unwell
P321: Specific treatment ( see chapter 4.2 below)
P362: Take off contaminated clothing and wash before reuse.
P391: Collect spillage
P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up

**Recommended Restrictions on Use (Advice Against)**: This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier. This product is not to be used as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser.

**Additional Information:** This document contains important information to ensure the safe storage, handling and use of this product. The information in this

| | |
|---|---|
| | document should be brought to the attention of the person in your organisation responsible for advising on safety matters. |

**Further Information**

| | |
|---|---|
| **MSDS Distribution:** | The information in this document should be made available to all who may handle the product. |
| **MSDS Version Number:** | 2.2 |
| **MSDS Effective Date:** | 2016-01-05 |
| **Disclaimer:** | This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. |

## Table of Contents exposure scenarios

### Identified Uses according to the Use Descriptor System

**Uses – Worker**
**Title**

1. Manufacture of substance
   - Industrial

**Uses – Worker**
**Title**

2. Use of substance as intermediate
   - Industrial

**Uses – Worker**
**Title**

3. Distribution of substance
   - Industrial

**Uses – Worker**
**Title**

4. Use as a fuel
   - Industrial

**Uses – Worker**
**Title**

5. Use as a fuel
   - Professional

**Uses – Worker**
**Title**

6. Use as a fuel
   - Consumer

## Abbreviation:

SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals
SU21 - Consumer uses: Private households (= general public = consumers)
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

PC13 – Fuels

PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15 - Use as laboratory reagent
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

ERC1 - Manufacture of substances
ERC2 - Formulation of preparations
ERC3 - Formulation in materials
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 - Industrial use resulting in inclusion into or onto a matrix
ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b - Industrial use of reactive processing aids
ERC6c - Industrial use of monomers for manufacture of thermo-plastics
ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
ERC7 - Industrial use of sub-stances in closed systems
ERC9a - Wide dispersive indoor use of substances in closed systems
ERC9b - Wide dispersive outdoor use of substances in closed systems

**Exposure Scenario – Worker**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 1. Manufacture of substance<br>- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3, SU8, SU9<br>**Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15<br>**Environmental Release Categories**: ERC1, ERC4, ESVOC SpERC 1.1.v1 |
| **Scope of process** | Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container). |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Worker Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10 kPa at STP |
| Concentration of substance in product | Covers percentage substance in the product up to 100% (unless stated differently). |
| **Frequency and Duration of Use** | |
| Covers daily exposures up to 8 hours (unless stated differently). | |
| **Other Operational Conditions affecting Exposure** | |
| Operation is carried out at elevated temperature (> 20°C above ambient temperature).<br>Assumes a good basic standard of occupational hygiene has been implemented. | |

| **Contributing Scenarios** | **Risk Management Measures** |
|---|---|
| General measures (skin irritants) | Avoid direct skin contact with product. Identify potential areas for indirect skin contact. . Wear gloves tested to EN374 (nitrile gloves have the best protection for diesel), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. |
| General exposures (closed systems) | No other specific measures identified. |
| General exposures (open systems) | No other specific measures identified. |
| Bulk transfers | No other specific measures identified. |
| Process sampling | No other specific measures identified. |
| Laboratory activities | No other specific measures identified. |

| | |
|---|---|
| Equipment cleaning and maintenance | No other specific measures identified. |
| Bulk product storage | No other specific measures identified. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 3,5E+05 |
| Fraction of Regional tonnage used locally: | 1 |
| Annual site tonnage (tonnes/year): | 3,5E+05 |
| Maximum daily site tonnage (kg/day): | 1,2E+06 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 300 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Release fraction to air from process (initial release prior to RMM): | 1,0E+02 |
| Release fraction to wastewater from process (initial release prior to RMM): | 3,0E-05 |
| Release fraction to soil from process (initial release prior to RMM): | 1,0E-04 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Risk from environmental exposure is driven by freshwater sediment. | |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |
| If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. | |
| Treat air emission to provide a typical removal efficiency of (%) | 90 |
| Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) | 84,9 |
| If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%) | 0 |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |
| Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) | 95,3 |

| | |
|---|---|
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): | 3.7E+06 |
| Assumed domestic sewage treatment plant flow (m3/d) | 10000 |
| **Conditions and measures related to external treatment of waste for disposal** | |
| During manufacturing no waste of the substance is generated. | |
| **Conditions and measures related to external recovery of waste** | |
| During manufacturing no waste of the substance is generated. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - Health** | |
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 - Environment** |
|---|
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.<br>Risk Management Measures are based on qualitative risk characterisation.<br><br>Available hazard data do not support the need for a DNEL to be established for other health effects.<br>Users are advised to consider national occupational exposure limits or other equivalent values.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 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. |
| Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. |
| Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. |
| Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |

**Exposure Scenario – Worker**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 2. Use of substance as intermediate<br>- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3, SU8, SU9<br>**Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15<br>**Environmental Release Categories**: ERC6A, ESVOC SpERC 6.1a.v1 |
| **Scope of process** | Use of substance as an intermediate within closed or contained systems (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container). |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Worker Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10 kPa at STP |
| Concentration of substance in product | Covers percentage substance in the product up to 100% (unless stated differently). |
| **Frequency and Duration of Use** | |
| Covers daily exposures up to 8 hours (unless stated differently). | |
| **Other Operational Conditions affecting Exposure** | |
| Operation is carried out at elevated temperature (> 20°C above ambient temperature).<br>Assumes a good basic standard of occupational hygiene has been implemented. | |

| **Contributing Scenarios** | **Risk Management Measures** |
|---|---|
| General measures (skin irritants) | Avoid direct skin contact with product. Identify potential areas for indirect skin contact. . Wear gloves tested to EN374 (nitrile gloves have the best protection for diesel), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. |
| General exposures (closed systems) | No other specific measures identified. |
| General exposures (open systems) | No other specific measures identified. |
| Bulk transfers | No other specific measures identified. |

| | |
|---|---|
| Process sampling | No other specific measures identified. |
| Laboratory activities | No other specific measures identified. |
| Equipment cleaning and maintenance | No other specific measures identified. |
| Bulk product storage | Store substance within a closed system. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 10 |
| Fraction of Regional tonnage used locally: | 1 |
| Annual site tonnage (tonnes/year): | 10 |
| Maximum daily site tonnage (kg/day): | 5,0E+02 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 20 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Release fraction to air from process (initial release prior to RMM): | 1,0E-03 |
| Release fraction to wastewater from process (initial release prior to RMM): | 1,0E-05 |
| Release fraction to soil from process (initial release prior to RMM): | 0,001 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Risk from environmental exposure is driven by freshwater sediment. | |
| Prevent discharge of undissolved substance to or recover from onsite wastewater. | |
| No wastewater treatment required. | |
| Treat air emission to provide a typical removal efficiency of (%) | 80 |
| Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) | 0 |
| If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%) | 0 |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |

| | |
|---|---|
| Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) | 95,3 |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) | 3,9E+04 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2000 |
| **Conditions and measures related to external treatment of waste for disposal** | |
| This substance is consumed during use and no waste of substance is generated. | |
| **Conditions and measures related to external recovery of waste** | |
| This substance is consumed during use and no waste of substance is generated. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - Health** | |
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 - Environment** |
|---|
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.<br>Risk Management Measures are based on qualitative risk characterisation.<br><br>Available hazard data do not support the need for a DNEL to be established for other health effects.<br>Users are advised to consider national occupational exposure limits or other equivalent values.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 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. |
| Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. |
| Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. |
| Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |

**Exposure Scenario – Worker**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 3. Distribution of substance<br>- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3<br>**Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15<br>**Environmental Release Categories**: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7, ESVOC SpERC 1.1b.v1 |
| **Scope of process** | Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Worker Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10 kPa at STP |
| Concentration of substance in product | Covers percentage substance in the product up to 100% (unless stated differently). |
| **Frequency and Duration of Use** | |
| Covers daily exposures up to 8 hours (unless stated differently). | |
| **Other Operational Conditions affecting Exposure** | |
| Assumes use at not more than 20°C above ambient temperature (unless stated differently).<br>Assumes a good basic standard of occupational hygiene has been implemented. | |

| **Contributing Scenarios** | **Risk Management Measures** |
|---|---|
| General measures (skin irritants) | Avoid direct skin contact with product. Identify potential areas for indirect skin contact. . Wear gloves tested to EN374 (nitrile gloves have the best protection for diesel), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. |
| General exposures (closed systems) | No other specific measures identified. |
| General exposures (open systems) | No other specific measures identified. |
| Process sampling | No other specific measures identified. |
| Laboratory activities | No other specific measures identified. |

| | |
|---|---|
| Bulk transfers | No other specific measures identified. |
| Drum and small package filling | No other specific measures identified. |
| Equipment cleaning and maintenance | No other specific measures identified. |
| Bulk product storage | No other specific measures identified. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 3,5E+05 |
| Fraction of Regional tonnage used locally: | 0,002 |
| Annual site tonnage (tonnes/year): | 0,07 |
| Maximum daily site tonnage (kg/day): | 3,5E+04 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 20 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Release fraction to air from process (initial release prior to RMM): | 1,0E-03 |
| Release fraction to wastewater from process (initial release prior to RMM): | 1,0E-07 |
| Release fraction to soil from process (initial release prior to RMM): | 1,0E-05 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Risk from environmental exposure is driven by freshwater | |
| No wastewater treatment required | |
| Treat air emission to provide a typical removal efficiency of (%) | 90 |
| Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) | 0 |
| If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%) | 0 |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |
| Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) | 95,3 |

| | |
|---|---|
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) | 2,8E+06 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2000 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| External treatment and disposal of waste should comply with applicable local and/or regional regulations | |
| **Conditions and measures related to external recovery of waste** | |
| External recovery and recycling of waste should comply with applicable local and/or regional regulations | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - Health** | |
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 - Environment** |
|---|
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.<br>Risk Management Measures are based on qualitative risk characterisation.<br><br>Available hazard data do not support the need for a DNEL to be established for other health effects.<br>Users are advised to consider national occupational exposure limits or other equivalent values.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 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. |
| Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. |
| Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. |
| Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |

**Exposure Scenario – Worker**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 4. Use as a fuel<br>- Industrial |
| **Use Descriptor** | **Sector of Use**: SU3<br>**Process Categories**: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16<br>**Environmental Release Categories**: ERC7, ESVOC SpERC 7.12a.v1 |
| **Scope of process** | Covers the use as a fuel (or fuel additive and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Worker Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10 kPa at STP |
| Concentration of substance in product | Covers percentage substance in the product up to 100% (unless stated differently). |
| **Frequency and Duration of Use** | |
| Covers daily exposures up to 8 hours (unless stated differently). | |
| **Other Operational Conditions affecting Exposure** | |
| Assumes use at not more than 20°C above ambient temperature (unless stated differently).<br>Assumes a good basic standard of occupational hygiene has been implemented. | |

| **Contributing Scenarios** | **Risk Management Measures** |
|---|---|
| General measures (skin irritants) | Avoid direct skin contact with product. Identify potential areas for indirect skin contact. . Wear gloves tested to EN374 (nitrile gloves have the best protection for diesel), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. |
| General exposures (closed systems) | No other specific measures identified. |
| Use as a fuel (closed systems) | No other specific measures identified. |
| Bulk transfers | No other specific measures identified. |
| Drum/batch transfers | No other specific measures identified. |
| Equipment cleaning and maintenance | No other specific measures identified. |
| Bulk product storage | No other specific measures identified. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 5,3E+04 |
| Fraction of Regional tonnage used locally: | 1 |
| Annual site tonnage (tonnes/year): | 5,3E+04 |
| Maximum daily site tonnage (kg/day): | 1,8E+05 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 300 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): | 5,0E-03 |
| Release fraction to wastewater from process (initial release prior to RMM): | 1.0E-05 |
| Release fraction to soil from process (initial release prior to RMM): | 0 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Risk from environmental exposure is driven by freshwater sediment. | |
| If discharging to domestic treatment plant, no onsite wastewater treatment required. | |
| Treat air emission to provide a typical removal efficiency of (%) | 95 |
| Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) | 80,3 |
| If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%) | 0 |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |
| Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) | 95,3 |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) | 7,4E+05 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2000 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| Combustion emissions limited by required exhaust emission controls. | |

| |
|---|
| Waste combustion emissions considered in regional exposure assessment. |
| **Conditions and measures related to external recovery of waste** |
| This substance is consumed during use and no waste of the substance is generated. |

| | |
|---|---|
| **SECTION 3** | **EXPOSURE ESTIMATION** |

| |
|---|
| **Section 3.1 - Health** |
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. |

| |
|---|
| **Section 3.2 - Environment** |
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| | |
|---|---|
| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |

| |
|---|
| **Section 4.1 - Health** |
| Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.<br>Risk Management Measures are based on qualitative risk characterisation.<br><br>Available hazard data do not support the need for a DNEL to be established for other health effects.<br>Users are advised to consider national occupational exposure limits or other equivalent values.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. |

| |
|---|
| **Section 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. |
| Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. |
| Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. |
| Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |

**Exposure Scenario – Worker**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 5. Use as a fuel<br>- Professional |
| **Use Descriptor** | **Sector of Use**: SU22<br>**Process Categories**: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16<br>**Environmental Release Categories**: ERC9A, ERC9B, ESVOC SpERC 9.12b.v1 |
| **Scope of process** | Covers the use as a fuel (or fuel additive and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Worker Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10 kPa at STP |
| Concentration of substance in product | Covers percentage substance in the product up to 100% (unless stated differently). |
| **Frequency and Duration of Use** | |
| Covers daily exposures up to 8 hours (unless stated differently). | |
| **Other Operational Conditions affecting Exposure** | |
| Assumes use at not more than 20°C above ambient temperature (unless stated differently).<br>Assumes a good basic standard of occupational hygiene has been implemented. | |

| **Contributing Scenarios** | **Risk Management Measures** |
|---|---|
| General measures (skin irritants) | Avoid direct skin contact with product. Identify potential areas for indirect skin contact. . Wear gloves tested to EN374 (nitrile gloves have the best protection for diesel), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. |
| General exposures (closed systems) | No other specific measures identified. |
| Use as a fuel (closed systems) | No other specific measures identified. |
| Bulk transfers | No other specific measures identified. |
| Transfer from/pouring from containers | No other specific measures identified. |

| | |
|---|---|
| Equipment cleaning and maintenance | No other specific measures identified. |
| Bulk product storage | No other specific measures identified. |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 1,0E+05 |
| Fraction of Regional tonnage used locally: | 5,0E-04 |
| Annual site tonnage (tonnes/year): | 0,5 |
| Maximum daily site tonnage (kg/day): | 1,4E+02 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 365 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |
| Release fraction to air from wide dispersive use (regional only): | 1,0E-04 |
| Release fraction to wastewater from wide dispersive use: | 1,0E-05 |
| Release fraction to soil from wide dispersive use (regional only): | 1,0E-05 |
| **Technical conditions and measures at process level (source) to prevent release** | |
| Common practices vary across sites thus conservative process release estimates used. | |
| **Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil** | |
| Risk from environmental exposure is driven by freshwater. | |
| No wastewater treatment required. | |
| Treat air emission to provide a typical removal efficiency of (%) | N/A |
| Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%) | 0 |
| If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%) | 0 |
| **Organisational measures to prevent/limit release from site** | |
| Do not apply industrial sludge to natural soils.<br>Sludge should be incinerated, contained or reclaimed. | |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |
| Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%) | 95,3 |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) | 1,0E+04 |

| | |
|---|---|
| Assumed domestic sewage treatment plant flow (m3/d) | 2000 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| Combustion emissions limited by required exhaust emission controls.<br>Combustion emissions considered in regional exposure assessment. | |
| **Conditions and measures related to external recovery of waste** | |
| This substance is consumed during use and no waste of the substance is generated. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - Health** | |
| The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | |

| **Section 3.2 - Environment** |
|---|
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.<br>Risk Management Measures are based on qualitative risk characterisation.<br><br>Available hazard data do not support the need for a DNEL to be established for other health effects.<br>Users are advised to consider national occupational exposure limits or other equivalent values.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 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. |
| Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. |
| Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. |
| Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |

**Exposure Scenario – Consumer**

| **SECTION 1** | **EXPOSURE SCENARIO TITLE** |
|---|---|
| **Title** | 6. Use as a fuel<br>- Consumer |
| **Use Descriptor** | **Sector of Use**: SU21<br>**Process Categories**: PC13<br>**Environmental Release Categories**: ERC9A, ERC9B, ESVOC SpERC 9.12b.v1 |
| **Scope of process** | Covers consumer uses in fuels. |

| **SECTION 2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|

| **Section 2.1** | **Control of Consumer Exposure** |
|---|---|
| **Product Characteristics** | |
| Physical form of product | Liquid, vapour pressure 0,5 - 10Pa at STP |
| Concentration of substance in product. | Unless otherwise stated: Covers concentrations up to 100% |
| **Amounts Used** | |
| Unless otherwise stated: | |
| for each use event, covers amount up to (g): | 50 000 |
| covers skin contact area (cm2): | 420 |
| **Frequency and duration of use/exposure** | |
| Unless otherwise stated: | |
| covers use up to (times/day of use): | 0,143 |
| covers use up to (hours/events): | 2 |
| **Other operational conditions affecting exposure** | |
| Unless otherwise stated: | |
| Covers use in room size of (m3) with typical ventilation: | 20 |

| **Product Categories** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES** |
|---|---|
| Fuels. Liquid - Automotive refuelling | Covers concentration up to 100 % |
| | Covers use up to 52 day/year |
| | Covers use up to 1 times/day of use |
| | Covers skin contact area up to 210 cm2 for each use event |
| | Covers use amount up to 50 000 g |
| | Covers outdoor use |
| | Covers use in room size of 100 m3 |

| | |
|---|---|
| | Covers exposure up to 0,05 hours/event |
| Fuels. Liquid - Home heating fuel | Covers concentration up to 100 % |
| | Covers use up to 365 day/year |
| | Covers use up to 1 times/day of use |
| | Covers skin contact area up to 210 cm2 for each use event |
| | Covers use amount up to 1 500 g |
| | Covers use under typical household ventilation |
| | Covers use in room size of 20 m3 |
| | Covers exposure up to 0,03 hours/event |
| Fuels. Liquid - Garden Equipment - Use | Covers concentration up to 100 % |
| | Covers use up to 26 day/year |
| | Covers use up to 1 times/day of use |
| | Covers use amount up to 1 000 g |
| | Covers outdoor use |
| | Covers use in room size of 100 m3 |
| | Covers exposure up to 2 hours/event |
| Fuels. Liquid - Garden Equipment - Refuelling | Covers concentrations up to 100 % |
| | Covers use up to 26 day/year |
| | Covers use up to 1 times/day of use |
| | Covers skin contact area 420 cm2 for each use event |
| | For each use event, covers amount up to 1 000 g. |
| | Covers use in a one car garage (34 m3) under typical ventilation. |
| | Covers use in room size of 34 m3 |
| | Covers exposure up to 0,03 hours/event |

| **Section 2.2** | **Control of Environmental Exposure** |
|---|---|
| Substance is complex UVCB | |
| Predominantly hydrophobic | |
| **Amounts Used** | |
| Fraction of EU tonnage used in region: | 0,1 |
| Regional use tonnage (tonnes/year): | 1,8E+05 |
| Fraction of Regional tonnage used locally: | 5,0E-04 |
| Annual site tonnage (tonnes/year): | 91 |
| Maximum daily site tonnage (kg/day): | 250 |
| **Frequency and Duration of Use** | |
| Continuous release | |
| Emission Days (days/year): | 365 |
| **Environmental factors not influenced by risk management** | |
| Local freshwater dilution factor: | 10 |
| Local marine water dilution factor: | 100 |
| **Other Operational Conditions affecting Environmental Exposure** | |

| | |
|---|---|
| Release fraction to air from wide dispersive use (regional only): | 1,0E-04 |
| Release fraction to wastewater from wide dispersive use: | 1,0E-05 |
| Release fraction to soil from wide dispersive use (regional only): | 1,0E-05 |
| **Conditions and Measures related to municipal sewage treatment plant** | |
| Risk from environmental exposure is driven by freshwater. | |
| Estimated substance removal from wastewater via domestic sewage treatment (%) | 95,3 |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d) | 2,0E+04 |
| Assumed domestic sewage treatment plant flow (m3/d) | 2000 |
| **Conditions and Measures related to external treatment of waste for disposal** | |
| Combustion emissions limited by required exhaust emission controls.<br>Waste combustion emissions considered in regional exposure assessment. | |
| **Conditions and measures related to external recovery of waste** | |
| This substance is consumed during use and no waste of the substance is generated. | |

| **SECTION 3** | **EXPOSURE ESTIMATION** |
|---|---|
| **Section 3.1 - Health** | |
| The ECETOC TRA tool has been used to estimate consumer exposures, consistent with the content of ECETOC Report #107 and the chapter R15 of the IR&CSA TGD. Where exposure determinants differ to these sources, then they are indicated. | |

| **Section 3.2 - Environment** |
|---|
| The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. |

| **SECTION 4** | **GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO** |
|---|---|
| **Section 4.1 - Health** | |
| Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.<br><br>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. | |

| **Section 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.<br>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). |