SAFETY DATA SHEET

Diesel Reference Fuel T-32

Version 1.16
Revision Date 2019-07-15


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

1.1

Product information

Product Name: Diesel Reference Fuel T-32
Material: 1024272, 1108916, 1024276, 1024273, 1024274, 1024275, 1032194

EC-No. Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Legal Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>68476-34-6, 270-676-1, 649-227-00-2</td>
<td>Chevron Phillips Chemicals International NV 01-211975502-40-0023</td>
</tr>
</tbody>
</table>

1.2

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

Relevant Identified Uses: 
- Manufacture
- Use as a fuel - industrial
- Use as a fuel – professional

1.3

Details of the supplier of the safety data sheet

Company: Chevron Phillips Chemical Company LP
Speciality Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local: Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vinci alln 19
1831 Diegem
Belgium

SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email: sds@cpchem.com

SDS Number: 100000100097

1/35
1.4 Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887 (int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Specific target organ toxicity - repeated exposure, Category 2, Liver
H373: May cause damage to organs through prolonged or repeated exposure.

Flammable liquids, Category 3
H226: Flammable liquid and vapor.

Short-term (acute) aquatic hazard, Category 2
H401: Toxic to aquatic life.

Acute toxicity, Category 4
H332: Harmful if inhaled.

Skin irritation, Category 2
H315: Causes skin irritation.

Carcinogenicity, Category 2
H351: Suspected of causing cancer.

Aspiration hazard, Category 1
H304: May be fatal if swallowed and enters airways.

Long-term (chronic) aquatic hazard, Category 2
H411: Toxic to aquatic life with long lasting effects.

2.2 Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H332: Harmful if inhaled.
H351: Suspected of causing cancer.
Diesel Reference Fuel T-32

Precautionary Statements:

**Prevention:**
- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P260: Do not breathe dust/fume/gas/mist/vapor/spray.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**
- P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
- P331: Do NOT induce vomiting.
- P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- P391: Collect spillage.

Hazardous ingredients which must be listed on the label:
- 68476-34-6: Diesel fuel, no. 2

**SECTION 3: Composition/information on ingredients**

### 3.1 - 3.2 Substance or Mixture

**Synonyms:** Diesel Reference Fuel T

**Molecular formula:** Mixture

**Hazardous ingredients**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>68476-34-6</td>
<td>STOT RE 2; H373 Flam. Liq. 3; H226 Aquatic Acute 2; H401 Acute Tox. 4; H332 Skin Irrit. 2; H315 Carc. 2; H351 Asp. Tox. 1; H304 Aquatic Chronic 2; H411</td>
<td>100</td>
</tr>
<tr>
<td>270-676-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>649-227-00-2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures**

### 4.1 Description of first-aid measures
Diesel Reference Fuel T-32

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled: Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact: If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point: 86.57 °C (187.83 °F)
Autoignition temperature: No data available

5.1 Extinguishing media
Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting: Do not allow run-off from fire fighting to enter drains or water courses.

5.3 Advice for firefighters
Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.
Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection: Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products: Hydrocarbons. Carbon oxides.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

Reference to other sections: For personal protection see section 8. For disposal considerations see section 13. For additional details, see the Exposure Scenario in the Annex portion.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling

Advice on safe handling: Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precaunatory measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion: Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

Storage
Requirements for storage areas and containers: No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters

PT

<table>
<thead>
<tr>
<th>Components</th>
<th>Bases</th>
<th>Valor</th>
<th>Parâmetros de controlo</th>
<th>Nota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>PT OEL</td>
<td>VLE-MP</td>
<td>100 mg/m³</td>
<td>P, A3,</td>
</tr>
<tr>
<td></td>
<td>PT OEL</td>
<td>VLE-MP</td>
<td>100 mg/m³</td>
<td>P, A3, Fração inalável e vapor</td>
</tr>
</tbody>
</table>

A3 Agente carcinogénico confirmado nos animais de laboratório com relevância desconhecida no Homem.
P Perigo de absorção cutânea

LT

<table>
<thead>
<tr>
<th>Komponentai</th>
<th>Saltinis</th>
<th>Vertė</th>
<th>Kontrolės parametrai</th>
<th>Pastaba</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>LT OEL</td>
<td>IPRD</td>
<td>200 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LT OEL</td>
<td>TPRD</td>
<td>300 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

HR

<table>
<thead>
<tr>
<th>Sastojci</th>
<th>Temelj</th>
<th>Vrijednost</th>
<th>Nadzorni parametri</th>
<th>Bilješka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>HR OEL</td>
<td>GVI</td>
<td>100 ppm, 400 mg/m³</td>
<td>2, 2, T,</td>
</tr>
</tbody>
</table>

Karc. kat. 2: Ivari koje su vjerojatno karcinogene za ljude
T Otrovnost

BE

<table>
<thead>
<tr>
<th>Bestanddeelen</th>
<th>Basis</th>
<th>Waarde</th>
<th>Controleparameters</th>
<th>Opmerking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel, no. 2</td>
<td>BE OEL</td>
<td>TGG 8 hr</td>
<td>100 mg/m³</td>
<td>D, damp en aerosol</td>
</tr>
<tr>
<td></td>
<td>BE OEL</td>
<td>TGG 8 hr</td>
<td>100 mg/m³</td>
<td>D, damp en aerosol</td>
</tr>
</tbody>
</table>

D Opname van het agens via de huid, de slijmvlies of de ogen vormt een belangrijk deel van de totale blootstelling. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.

8.2 Exposure controls
Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace 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.

Personal protective equipment

Respiratory protection: Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators...
may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 9: Physical and chemical properties**

### 9.1 Information on basic physical and chemical properties

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid at 20 °C (68 °F) (101,30 kPa)</td>
</tr>
<tr>
<td>Color</td>
<td>Pale yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
</tbody>
</table>

**Safety data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>86,57 °C (187,83 °F)</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>Mixture</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Pour point</td>
<td>-6 °C (21 °F)</td>
</tr>
</tbody>
</table>
Diesel Reference Fuel T-32

Method: ASTM D97

Boiling point/boiling range: 213 - 369 °C (415 - 696 °F)
   Method: ASTM D 86

Vapor pressure: 0,10 kPa
   at 40 °C (104 °F)

Relative density: 0,815
   at 21 °C (70 °F), ASTM D 1298

Density: 0,8149 g/cm3

Bulk density: 6,80 L/G

Water solubility: Negligible

Partition coefficient: n-octanol/water: No data available

Viscosity, kinematic: 3,247 cSt
   at 40 °C (104 °F)

Relative vapor density: No data available

Evaporation rate: No data available

Percent volatile: > 99 %

SECTION 10: Stability and reactivity

10.1 Reactivity: Stable under recommended storage conditions.

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 reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4 Conditions to avoid: Heat, flames and sparks.
10.5 Materials to avoid:
May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Thermal decomposition:
No data available

10.6 Hazardous decomposition products:
- Hydrocarbons
- Carbon oxides

Other data:
No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
Diesel fuel, no. 2:
- LD50: > 5000 mg/kg
  - Species: Rat
  - Sex: male and female
  - Method: OECD Test Guideline 401

Acute inhalation toxicity
Diesel fuel, no. 2:
- LC50: 4.1 mg/l
  - Exposure time: 4 h
  - Species: Rat
  - Sex: male and female
  - Test atmosphere: dust/mist
  - Method: OECD Test Guideline 403
  - Test substance: yes

Acute dermal toxicity
Diesel fuel, no. 2:
- LD50 Dermal: > 4300 mg/kg
  - Species: Rabbit
  - Sex: male and female
  - Test substance: yes

Diesel Reference Fuel T-32
Skin irritation:
May cause skin irritation in susceptible persons.

Diesel Reference Fuel T-32
Eye irritation:
Vapors may cause irritation to the eyes, respiratory system and the skin.

Sensitization
Diesel fuel, no. 2:
Did not cause sensitization on laboratory animals.

Repeated dose toxicity
Diesel fuel, no. 2:
Species: Rat, Male and female
### Diesel Reference Fuel T-32

**Version 1.16**

**Sex:** Male and female  
**Application Route:** Dermal  
**Dose:** 0, 30, 125, 500 mg/kg  
**Exposure time:** 13 wks  
**Number of exposures:** daily, 5 days/week  
**NOEL:** 30 mg/kg  
**Method:** OECD Guideline 411  
**Target Organs:** Thymus, Liver, Bone marrow  
*Information given is based on data obtained from similar substances.*

**Species:** Rat, Male and female  
**Sex:** Male and female  
**Application Route:** inhalation (dust/mist/fume)  
**Dose:** 0, 0.35, 0.88, 1.71 mg/l  
**Exposure time:** 13 wks  
**Number of exposures:** Twice/wk  
**NOEL:** > 1.71 mg/l  
**Method:** OECD Guideline 413  

### Genotoxicity in vitro

**Diesel fuel, no. 2**  
**Test Type:** Ames test  
**Result:** positive

**Test Type:** Mouse lymphoma assay  
**Result:** negative

### Genotoxicity in vivo

**Diesel fuel, no. 2**  
**Test Type:** Dominant lethal assay  
**Species:** Mouse  
**Dose:** 100 or 400 ppm  
**Result:** negative

### Carcinogenicity

**Diesel fuel, no. 2**  
**Species:** Mouse  
**Sex:** male  
**Dose:** 0, 25 ul  
**Exposure time:** lifetime  
**Number of exposures:** 3 times/wk  
**Remarks:** Moderate dermal carcinogen

### Developmental Toxicity

**Diesel fuel, no. 2**  
**Species:** Rat  
**Application Route:** Inhalation  
**Dose:** 0, 86.9, 408.8 ppm  
**Number of exposures:** 6 h/d  
**Test period:** GD 6-15  
**Method:** OECD Guideline 414  
**NOAEL Teratogenicity:** 408.8 ppm  
**NOAEL Maternal:** 408.8 ppm  
*Information given is based on data obtained from similar substances.*
Species: Rat  
Application Route: Dermal  
Dose: 30, 125, 500, 1000 mg/kg  
Exposure time: daily  
Test period: GD 0-20  
Method: OECD Guideline 414  
NOAEL Teratogenicity: 125 mg/kg  
Information given is based on data obtained from similar substances.

**Diesel Reference Fuel T-32 Aspiration toxicity**  
May be fatal if swallowed and enters airways.

**CMR effects**  
Diesel fuel, no. 2  
Carcinogenicity: Limited evidence of carcinogenicity in animal studies  
Teratogenicity: Animal testing did not show any effects on fetal development.

**Diesel Reference Fuel T-32 Further information**  
Solvents may degrease the skin.

### SECTION 12: Ecological information

#### 12.1 Toxicity

**Toxicity to fish**

Diesel fuel, no. 2  
LL50: 3,2 mg/l  
Exposure time: 96 h  
Species: Menidia beryllina (Silverside)  
semi-static test Method: EPA/600/4-90/027

**Toxicity to daphnia and other aquatic invertebrates**

Diesel fuel, no. 2  
EC50: 68 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 202

**Toxicity to algae**

Diesel fuel, no. 2  
EbC50: 10 mg/l  
Exposure time: 72 h  
Species: Raphidocellus subcapitata (algae)  
static test Analytical monitoring: no  
Method: OECD Test Guideline 201

#### 12.2 Persistence and degradability

Biodegradability
Diesel Reference Fuel T-32

Version 1.16  Revision Date 2019-07-15

Diesel fuel, no. 2  :  aerobic
Result: Not readily biodegradable.
57.5%
Testing period: 28 d
Method: OECD Test Guideline 301F

12.3
Bioaccumulative potential

Bioaccumulation

Diesel fuel, no. 2  :  No data available

12.4
Mobility in soil

Mobility

Diesel fuel, no. 2  :  No data available

12.5
Results of PBT and vPvB assessment

Results of PBT assessment  :  This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6
Other adverse effects

Additional ecological information  :  An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard
Diesel fuel, no. 2  :  Toxic to aquatic life.

Long-term (chronic) aquatic hazard
Diesel fuel, no. 2  :  Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1
Waste treatment methods
The information in this SDS pertains only to the product as shipped.

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 US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product  :  The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or
Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 14: Transport information

14.1 - 14.7
Transport information
The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1202, DIESEL FUEL, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIESEL FUEL), 9, III, (86,57 °C), MARINE POLLUTANT, (DIESEL FUEL)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIESEL FUEL), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1202, DIESEL FUEL, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1202, DIESEL FUEL, 3, III, ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1202, DIESEL FUEL, 3, III, ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
### SECTION 15: Regulatory information

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

<table>
<thead>
<tr>
<th>Water contaminating class</th>
<th>WGK 2 water endangering VwVwS</th>
</tr>
</thead>
</table>

**15.2 Chemical Safety Assessment**  
Components: Fuels, diesel, no. 2  
270-676-1  

<table>
<thead>
<tr>
<th>Major Accident Hazard Legislation</th>
<th>96/82/EC Update: Not applicable</th>
</tr>
</thead>
</table>

**Notification status**  
Europe REACH: This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).  
United States of America (USA) TSCA: On TSCA Inventory  
Canada DSL: All components of this product are on the Canadian DSL  
Australia AICS: On the inventory, or in compliance with the inventory  
New Zealand NZIoC: On the inventory, or in compliance with the inventory  
Japan ENCS: On the inventory, or in compliance with the inventory  
Korea KECI: On the inventory, or in compliance with the inventory  
Philippines PICCS: On the inventory, or in compliance with the inventory  
China IECSC: On the inventory, or in compliance with the inventory

### SECTION 16: Other information

| NFPA Classification | Health Hazard: 2  
Fire Hazard: 2  
Reactivity Hazard: 0 |
|---------------------|-----------------|

**Further information**  
Legacy SDS Number: CPC00523

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.  
The information in this SDS pertains only to the product as shipped.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>EC50%</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
</tr>
<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>

Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
Annex

1. Short title of Exposure Scenario: Manufacture

Main User Groups: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Sector of use: SU3, SU8, SU9: Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals

Process category:
- 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
- PROC15: Use as laboratory reagent

Environmental release category: ERC1: Manufacture of substances

Further information:
Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Product characteristics

Remarks: Substance is complex UVCB, Predominantly hydrophobic.

Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal (tonnes/day): 3,300

Environment factors not influenced by risk management

Flow rate: 18,000 m3/d
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure

Continuous use/release
Number of emission days per year: 300
Emission or Release Factor: Air: 1 %
### Diesel Reference Fuel T-32

**SAFETY DATA SHEET**

**Version 1.16**  
**Revision Date 2019-07-15**

| Emission or Release Factor: Water | 0.003 % |
| Emission or Release Factor: Soil | 0.01 % |

#### Technical conditions and measures / Organizational measures

**Air**  
Treat air emission to provide a typical removal efficiency of (%):  
(Effectiveness: 90 %)

**Water**  
Treat onsite wastewater (prior to receiving water discharge) to  
provide the required removal efficiency of ≥ (%):  
(Effectiveness: 90.3 %)

**Remarks**  
Common practices vary across sites thus conservative  
process release estimates used.

**Water**  
If discharging to domestic sewage treatment plant, provide the  
required onsite wastewater removal efficiency of ≥ (%):  
(Effectiveness: 0 %)

**Remarks**  
Risk from environmental exposure is driven by freshwater  
sediment.

**Remarks**  
Prevent discharge of undissolved substance to or recover  
from onsite wastewater.

**Remarks**  
If discharging to domestic sewage treatment plant, no onsite  
wastewater treatment required.

**Remarks**  
Prevent discharge of undissolved substance to or recover  
from wastewater.

**Remarks**  
Do not apply industrial sludge to natural soils.

**Remarks**  
Sludge should be incinerated, contained or reclaimed.

#### Conditions and measures related to municipal sewage treatment plant

**Type of Sewage Treatment Plant**  
Municipal sewage treatment plant

**Flow rate of sewage treatment plant effluent**  
10.000 m³/d

**Effectiveness (of a measure)**  
94.1 %

**Percentage removed from wastewater**  
94.1 %

#### Conditions and measures related to external treatment of waste for disposal

**Waste treatment**  
During manufacturing no waste of the substance is generated.

#### Conditions and measures related to external recovery of waste

**Recovery Methods**  
During manufacturing no waste of the substance is generated.

#### 2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

**Product characteristics**

**Remarks**  
Substance is complex UVCB., Predominantly hydrophobic.

**Remarks**  
Liquid, vapour pressure < 0.5 kPa at STP

**Remarks**  
With potential for aerosol generation.

**Frequency and duration of use**

**Remarks**  
Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**

**Remarks**  
Operation is carried out at elevated temperature (> 20°C  
above ambient temperature). Assumes a good basic standard  
of occupational hygiene is implemented.

**Technical conditions and measures**

Handle substance within a closed system., Store substance within a closed system.

SDS Number:100000100097  
17/35
Organizational measures to prevent /limit releases, dispersion and exposure
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) 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.

Conditions and measures related to personal protection, hygiene and health evaluation
Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimize exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions.

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP
Remarks: With potential for aerosol generation.

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

Other operational conditions affecting workers exposure
Remarks: Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Handle substance within a closed system., Store substance within a closed system.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP
Remarks: With potential for aerosol generation.

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

Other operational conditions affecting workers exposure
Remarks: Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Handle substance within a closed system.

Organizational measures to prevent /limit releases, dispersion and exposure
2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Remarks</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other operational conditions affecting workers exposure</strong></th>
<th>Remarks</th>
<th>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conditions and measures related to personal protection, hygiene and health evaluation**
Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Remarks</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other operational conditions affecting workers exposure</strong></th>
<th>Remarks</th>
<th>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technical conditions and measures**
Drain down system prior to equipment opening or maintenance.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Remarks</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Diesel Reference Fuel T-32

Other operational conditions affecting workers exposure

Remarks: Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures

Handle substance within a closed system.

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

Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics

Remarks: Liquid, vapour pressure < 0.5 kPa at STP
Remarks: With potential for aerosol generation.

Frequency and duration of use

Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure

Remarks: Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent/limit releases, dispersion and exposure

No other specific measures identified.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC1</td>
<td>Hydrocarbon Block Method with Petrorisk</td>
<td></td>
<td>Air</td>
<td>0,46 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater</td>
<td>0,036 mg/L</td>
<td>0,54</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>1,4 mg/kg wet weight</td>
<td>0,61</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,0036 mg/L</td>
<td>0,054</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0,14 mg/kg wet weight</td>
<td>0,061</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0,17 mg/kg wet weight</td>
<td>0,015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ERC1: Manufacture of substances

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1, CS15</td>
<td>ECETOC TRA</td>
<td>Worker – inhalation</td>
<td>0,01 mg/m³</td>
<td></td>
<td>0,00</td>
</tr>
</tbody>
</table>

SDS Number: 100000100097 20/35
<table>
<thead>
<tr>
<th>PROC, CS</th>
<th>ECETOC TRA</th>
<th>Modified</th>
<th>long-term – systemic</th>
<th>Combined routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1, CS85</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,37 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,49</td>
</tr>
<tr>
<td>PROC2, CS15, CS85</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,37 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,49</td>
</tr>
<tr>
<td>PROC3, CS15</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>3 mg/m³</td>
<td>0,04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,16</td>
</tr>
<tr>
<td>PROC3, CS85</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>2,1 mg/m³</td>
<td>0,03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,15</td>
</tr>
<tr>
<td>PROC4, CS16</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>6,86 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,55</td>
</tr>
<tr>
<td>PROC8a, CS39</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>2 mg/m³</td>
<td>0,03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>13,71 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,50</td>
</tr>
<tr>
<td>PROC8b, CS501, CS503</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>6,86 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,55</td>
</tr>
<tr>
<td>PROC15, CS36</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,19</td>
</tr>
</tbody>
</table>

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
CS85: Bulk product storage
### 1. Short title of Exposure Scenario: *Use as a fuel - industrial*

**Main User Groups**: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Sector of use**: SU3: Industrial Manufacturing (all)  
**SDS Number**: 100000100097

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects.

Risk Management Measures are based on qualitative risk characterisation. 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.

Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file – “Site-Specific Production” worksheet.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Taking into account the findings of the air-monitoring evaluation on benzene included as the Tier 2 analysis in the Low Boiling Point Naphtha category, the default “Air Removal Efficiency” of 90% included in the SPERC has been shown to be over-conservative and that the 95% efficiency can safely be claimed in a Tier II analysis. On this basis, the Tier 2 analysis demonstrates that no refineries have RCRs>1 (see PETRORISK file in IUCLID section 13-“Tier 2 Site Specific Production worksheet”).
# Diesel Reference Fuel T-32

**Process category**

- **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)
- **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
- **PROC16**: Using material as fuel sources, limited exposure to unburned product to be expected

**Environmental release category**

- **ERC7**: Industrial use of substances in closed systems

**Further information**

Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

## 2.1 Contributing scenario controlling environmental exposure for: ERC7: Industrial use of substances in closed systems

### Product characteristics

**Remarks**

Substance is complex UVCB., Predominantly hydrophobic.

### Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day):

- **Msafe**: 5.000

### Environment factors not influenced by risk management

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
<td>18,000 m³/d</td>
</tr>
<tr>
<td>Dilution Factor (River)</td>
<td>10</td>
</tr>
<tr>
<td>Dilution Factor (Coastal Areas)</td>
<td>100</td>
</tr>
</tbody>
</table>

### Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous use/release</td>
<td></td>
</tr>
<tr>
<td>Number of emission days per year</td>
<td>300</td>
</tr>
<tr>
<td>Emission or Release Factor: Air</td>
<td>0,5 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Water</td>
<td>0,001 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Soil</td>
<td>0 %</td>
</tr>
</tbody>
</table>

### Technical conditions and measures / Organizational measures

#### Air

Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %)

#### Water

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 97,7 %)

**Remarks**

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

#### Water

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 60,4 %)

---

SDS Number: 100000100097
## Remarks
- Risk from environmental exposure is driven by freshwater sediment.
- If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
- Prevent discharge of undissolved substance to or recover from wastewater.
- Do not apply industrial sludge to natural soils.
- Sludge should be incinerated, contained or reclaimed.

## Conditions and measures related to municipal sewage treatment plant
- **Type of Sewage Treatment Plant**: Municipal sewage treatment plant
- **Flow rate of sewage treatment plant effluent**: 2.000 m³/d
- **Effectiveness (of a measure)**: 94,1 %
- **Percentage removed from wastewater**: 97,7 %

## Conditions and measures related to external treatment of waste for disposal
- **Remarks**: Combustion emissions limited by required exhaust emission controls.
- **Remarks**: Combustion emissions considered in regional exposure assessment.

## Conditions and measures related to external recovery of waste
- **Recovery Methods**: External recovery and recycling of waste should comply with applicable local and/or national regulations.

## 2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

### Product characteristics
- **Remarks**: Substance is complex UVCB., Predominantly hydrophobic.
- **Remarks**: Liquid, vapour pressure < 0.5 kPa at STP
- **Remarks**: With potential for aerosol generation.

### Frequency and duration of use
- **Remarks**: Covers daily exposures up to 8 hours (unless stated differently)

### Other operational conditions affecting workers exposure
- **Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

### Technical conditions and measures
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance is likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent/minimize exposures and to report any skin effects that may develop. Store substance within a closed system.

### Organizational measures to prevent /limit releases, dispersion and exposure
No other specific measures identified.

### Conditions and measures related to personal protection, hygiene and health evaluation
Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and
aware of basic actions to minimize exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions.

### 2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

**Product characteristics**
- **Remarks**: Liquid, vapour pressure < 0.5 kPa at STP
- **Remarks**: With potential for aerosol generation.

**Frequency and duration of use**
- **Remarks**: Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**
- **Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**
- Store substance within a closed system.

### 2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

**Product characteristics**
- **Remarks**: Liquid, vapour pressure < 0.5 kPa at STP
- **Remarks**: With potential for aerosol generation.

**Frequency and duration of use**
- **Remarks**: Covers daily exposures up to 8 hours (unless stated differently)

**Other operational conditions affecting workers exposure**
- **Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

**Organizational measures to prevent /limit releases, dispersion and exposure**
- No other specific measures identified.

### 2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

**Product characteristics**
- **Remarks**: Liquid, vapour pressure < 0.5 kPa at STP
- **Remarks**: With potential for aerosol generation.

**Frequency and duration of use**
- **Remarks**: Covers daily exposures up to 8 hours (unless stated differently)
### Diesel Reference Fuel T-32

**SAFETY DATA SHEET**

**Version 1.16**

**Revision Date 2019-07-15**

---

#### Other operational conditions affecting workers exposure

**Remarks**

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

---

#### Technical conditions and measures

Drain down system prior to equipment opening or maintenance.

---

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

Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

---

##### 2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

**Product characteristics**

**Remarks**

- Liquid, vapour pressure < 0.5 kPa at STP
- With potential for aerosol generation.

**Frequency and duration of use**

**Remarks**

Covers daily exposures up to 8 hours (unless stated differently)

---

#### Other operational conditions affecting workers exposure

**Remarks**

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

---

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

Wear suitable gloves tested to EN374.

---

##### 2.2 Contributing scenario controlling worker exposure for: PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

**Product characteristics**

**Remarks**

- Liquid, vapour pressure < 0.5 kPa at STP
- With potential for aerosol generation.

**Frequency and duration of use**

**Remarks**

Covers daily exposures up to 8 hours (unless stated differently)

---

#### Other operational conditions affecting workers exposure

**Remarks**

Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

---

#### Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

---

#### 3. Exposure estimation and reference to its source

SDS Number:100000100097 26/35
## Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC7</td>
<td>Hydrocarbon Block Method with Petrorisk</td>
<td>Freshwater</td>
<td>Air</td>
<td>0,29 mg/m³</td>
<td>0,8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>Freshwater</td>
<td>2,1 mg/kg wet weight</td>
<td>0,91</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>Marine sediment</td>
<td>0,055 mg/L</td>
<td>0,08</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>Freshwater</td>
<td>0,21 mg/kg wet weight</td>
<td>0,091</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>Freshwater</td>
<td>0,17 mg/kg wet weight</td>
<td>0,01</td>
<td></td>
</tr>
</tbody>
</table>

ERC7: Industrial use of substances in closed systems

## Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1, CS15</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,37 mg/kg/d</td>
<td>0,47</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,14 mg/kg/d</td>
<td>0,06</td>
<td></td>
</tr>
<tr>
<td>PROC1, CS67</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,14 mg/kg/d</td>
<td>0,05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC2, CS15</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,37 mg/kg/d</td>
<td>0,47</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,14 mg/kg/d</td>
<td>0,05</td>
<td></td>
</tr>
<tr>
<td>PROC2, CS67</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,14 mg/kg/d</td>
<td>0,05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC3, CS107</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC8a, CS39, CS103</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>13,71 mg/kg/d</td>
<td>0,47</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC8b, CS8, CS14</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,07</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>6,86 mg/kg/d</td>
<td>0,47</td>
<td></td>
</tr>
</tbody>
</table>
## Diesel Reference Fuel T-32

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation. 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).

<table>
<thead>
<tr>
<th>PROC16, CS107</th>
<th>ECETOC TRA Modified</th>
<th>Worker – long-term – systemic Combined routes</th>
<th>0,55</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,03 mg/kg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
</tr>
</tbody>
</table>

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)

PROC1: Use in closed process, no likelihood of exposure
CS67: Storage

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)

PROC2: Use in closed, continuous process with occasional controlled exposure
CS67: Storage

PROC3: Use in closed batch process (synthesis or formulation)
CS107: (closed systems)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS39: Equipment cleaning and maintenance
CS103: Vessel and container cleaning

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS8: Drum/batch transfers
CS14: Bulk transfers

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
CS107: (closed systems)
1. Short title of Exposure Scenario: Use as a fuel – professional

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</td>
</tr>
<tr>
<td>Process category</td>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td></td>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td></td>
<td>PROC3: Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td></td>
<td>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC16: Using material as fuel sources, limited exposure to unburned product to be expected</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems</td>
</tr>
<tr>
<td>Further information</td>
<td>Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.</td>
</tr>
</tbody>
</table>

2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substances is complex UVCB., Predominantly hydrophobic.</td>
<td></td>
</tr>
</tbody>
</table>

| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe) | 140.000 |

<table>
<thead>
<tr>
<th>Environment factors not influenced by risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate</td>
</tr>
<tr>
<td>Dilution Factor (River)</td>
</tr>
<tr>
<td>Dilution Factor (Coastal Areas)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other given operational conditions affecting environmental exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous use/release</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures / Organizational measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Reference fraction to air from wide dispersive use (regional use only)</td>
</tr>
<tr>
<td>Water Reference fraction to wastewater wide dispersive use</td>
</tr>
</tbody>
</table>
## Diesel Reference Fuel T-32

### Remarks
- **Soil**: Release fraction to soil from wide dispersive use (regional use only)
- **Remarks**: < 0.001 %
- **Remarks**: Common practices vary across sites thus conservative process release estimates used.
- **Remarks**: Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).
- **Remarks**: Soil: Release fraction to soil from wide dispersive use (regional use only)
- **Remarks**: < 0.001 %
- **Remarks**: Common practices vary across sites thus conservative process release estimates used.
- **Remarks**: Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).
- **Air**: Treat air emission to provide a typical removal efficiency of (%): Not applicable
- **Remarks**: Air: Treat air emission to provide a typical removal efficiency of (%): Not applicable
- **Remarks**: Not applicable

### Conditions and measures related to municipal sewage treatment plant
- **Type of Sewage Treatment Plant**: Municipal sewage treatment plant
- **Flow rate of sewage treatment plant effluent**: 2.000 m³/d
- **Effectiveness (of a measure)**: 94.1 %
- **Percentage removed from wastewater**: 94.1 %

### Conditions and measures related to external treatment of waste for disposal
- **Remarks**: Combustion emissions limited by required exhaust emission controls.
- **Remarks**: Combustion emissions considered in regional exposure assessment.

### Conditions and measures related to external recovery of waste
- **Recovery Methods**: External recovery and recycling of waste should comply with applicable local and/or national regulations.

### 2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

### Product characteristics
- **Remarks**: Substance is complex UVCB., Predominantly hydrophobic.
- **Remarks**: Liquid, vapour pressure < 0.5 kPa at STP
- **Remarks**: With potential for aerosol generation.

### Frequency and duration of use
- **Remarks**: Covers daily exposures up to 8 hours (unless stated differently)

### Other operational conditions affecting workers exposure
- **Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

### Technical conditions and measures
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance is likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately. Provide basic employee training to prevent/minimize exposures and to report any skin effects that may develop. Store substance within a closed system.

**Organizational measures to prevent /limit releases, dispersion and exposure**
No other specific measures identified.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimize exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions.

### 2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
<th>Remarks</th>
<th>Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Organizational measures to prevent /limit releases, dispersion and exposure**
No other specific measures identified.

### 2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
<th>Remarks</th>
<th>Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Organizational measures to prevent /limit releases, dispersion and exposure**
### 2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions and measures related to personal protection, hygiene and health evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.</td>
</tr>
</tbody>
</table>

### 2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions and measures related to personal protection, hygiene and health evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear suitable gloves tested to EN374.</td>
</tr>
</tbody>
</table>

### 2.2 Contributing scenario controlling worker exposure for: PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>With potential for aerosol generation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
**Diesel Reference Fuel T-32**

**Version 1.16**  
Revision Date 2019-07-15

**Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

**Technical conditions and measures**  
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors.

### 3. Exposure estimation and reference to its source

**Environment**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC9a, ERC9b</td>
<td>Hydrocarbon Block Method with Petrorisk</td>
<td></td>
<td>Air</td>
<td>0,02 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater</td>
<td>0,0015 mg/L</td>
<td>0,043</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>1,4 mg/kg wet weight</td>
<td>0,05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,000028 mg/L</td>
<td>0,00041</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0,063 mg/kg wet weight</td>
<td>0,0014</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0,17 mg/kg wet weight</td>
<td>0,0054</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ERC9a: Wide dispersive indoor use of substances in closed systems  
ERC9b: Wide dispersive outdoor use of substances in closed systems

**Workers/Consumers**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1, CS15</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,34 mg/kg/d</td>
<td>0,46</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,48</td>
<td></td>
</tr>
<tr>
<td>PROC1, CS67</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>0,01 mg/m³</td>
<td>0,00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,12</td>
<td></td>
</tr>
<tr>
<td>PROC2, CS15</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,34 mg/kg/d</td>
<td>0,46</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,48</td>
<td></td>
</tr>
<tr>
<td>PROC3, CS107</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,34 mg/kg/d</td>
<td>0,12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,13</td>
<td></td>
</tr>
<tr>
<td>PROC8a, CS39</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
<td></td>
</tr>
</tbody>
</table>
### Diesel Reference Fuel T-32

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>Route</th>
<th>Concentration</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC8a, CS103</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,07</td>
</tr>
<tr>
<td>PROC8b, CS14, CS507</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
<td>6,86 mg/kg/d</td>
<td>0,47</td>
</tr>
<tr>
<td>PROC8b, CS8</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,01</td>
</tr>
<tr>
<td>PROC16, CS107</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>14 mg/m³</td>
<td>0,20</td>
</tr>
</tbody>
</table>

**PROC1:** Use in closed process, no likelihood of exposure

**CS15:** General exposures (closed systems)

**PROC2:** Use in closed, continuous process with occasional controlled exposure

**CS15:** General exposures (closed systems)

**PROC3:** Use in closed batch process (synthesis or formulation)

**CS107:** (closed systems)

**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

**CS39:** Equipment cleaning and maintenance

**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

**CS103:** Vessel and container cleaning

**PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

**CS14:** Bulk transfers

**CS507:** Refueling

**PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

**CS8:** Drum/batch transfers

**PROC16:** Using material as fuel sources, limited exposure to unburned product to be expected

**CS107:** (closed systems)

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**SDS Number:** 100000100097 34/35
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation. 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).