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

Product information

Product Name : Diesel PC-9-HS Test Fuel
Material : 1109136, 1109135, 1109134, 1109133, 1109132

EC-No.Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. Index No.</th>
<th>Legal Entity Registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel</td>
<td>68476-34-6</td>
<td>Chevron Phillips Chemicals International NV 01-2119475502-40-0023</td>
</tr>
<tr>
<td></td>
<td>270-676-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>649-227-00-2</td>
<td></td>
</tr>
</tbody>
</table>

Relevant Identified Uses : Manufacture
Supported Distribution
Use as an intermediate
Use as a fuel - industrial
Use as a fuel – professional

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

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

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

Emergency telephone:

Health: 866.442.9628 (North America)
Diesel PC-9-HS Test Fuel

Version 1.5

1.832.813.4984 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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

SECTION 2: Hazards identification

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

Specific target organ systemic toxicity - repeated exposure, Category 2, Liver

, Thyroid
, Bone marrow

Flammable liquids, Category 3

Acute aquatic toxicity, Category 2

Acute toxicity, Category 4

Skin irritation, Category 2

Carcinogenicity, Category 2

Aspiration hazard, Category 1

Chronic aquatic toxicity, Category 2

H373: May cause damage to organs through prolonged or repeated exposure.

H226: Flammable liquid and vapor.

H401: Toxic to aquatic life.

H332: Harmful if inhaled.

H315: Causes skin irritation.

H351: Suspected of causing cancer.

H304: May be fatal if swallowed and enters airways.

H411: Toxic to aquatic life with long lasting effects.

Label elements

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.
H373 May cause damage to organs (Liver) through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements :
Prevention: P210 Keep away from heat/sparks/open
Diesel PC-9-HS Test Fuel

SAFETY DATA SHEET

Version 1.5
Revision Date 2016-06-03

P260 Do not breathe dust/fume/gas/mist/vapor/spray.
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.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous ingredients which must be listed on the label:
- 68476-34-6 Diesel fuel

SECTION 3: Composition/information on ingredients

Molecular formula : Mixture

Mixtures

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel fuel</td>
<td>68476-34-6 270-676-1 649-227-00-2</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>
</tbody>
</table>

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

SECTION 4: First aid measures

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...
Diesel PC-9-HS Test Fuel

SECTION 5: Firefighting measures

Flash point: 60.6 °C (141.1 °F)
Method: ASTM D 93

Autoignition temperature: No data available

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media: High volume water jet.

Specific hazards during fire fighting: Do not allow run-off from fire fighting to enter drains or water courses.

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

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.

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.

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth,

SDS Number: 100000001030
Diesel PC-9-HS Test Fuel

SECTION 7: Handling and storage

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 precautionary 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.

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

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>PT</th>
<th>Componentes</th>
<th>Bases</th>
<th>Valor</th>
<th>Parâmetros de controlo</th>
<th>Nota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>PT OEL</td>
<td>VLE-MP</td>
<td>100 mg/m³</td>
<td>P, A3,</td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>PT OEL</td>
<td>VLE-MP</td>
<td>100 mg/m³</td>
<td>P, A3, Fração inalável e vapor</td>
</tr>
<tr>
<td>LT</td>
<td>Komponentai</td>
<td>Pagrindas, bazė</td>
<td>Vertė</td>
<td>Kontrolės parametrai</td>
<td>Pastaba</td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>LT OEL</td>
<td>IPRD</td>
<td>200 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>LT OEL</td>
<td>TPRD</td>
<td>300 mg/m³</td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>Sastojci</td>
<td>Temelj</td>
<td>Vrijednost</td>
<td>Nadzorni parametri</td>
<td>Bilješka</td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>HR OEL</td>
<td>GVI</td>
<td>100 ppm, 400 mg/m³</td>
<td>2, 2, T</td>
</tr>
<tr>
<td>BE</td>
<td>Bestanddelen</td>
<td>Basis</td>
<td>Waarde</td>
<td>Controleparameters</td>
<td>Opmerking</td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>BE OEL</td>
<td>TGG 8 hr</td>
<td>100 mg/m³</td>
<td>D</td>
</tr>
<tr>
<td>Burn</td>
<td>Diesel, diesel, no. 2</td>
<td>BE OEL</td>
<td>TGG 8 hr</td>
<td>100 mg/m³</td>
<td>D, damp en aërosol</td>
</tr>
</tbody>
</table>

SDS Number: 100000001030
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 according to the amount and concentration of the dangerous substance at the workplace. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear. Skin should be washed after contact.

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

Information on basic physical and chemical properties

Appearance

Form: Liquid
Physical state: Liquid at 40 °C (104 °F)
          (101,30 kPa)
Color: Pale yellow to brown (if undyed), red to purple (dyed)
Odor: Mild
## Safety data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>60.6 °C (141.1 °F)</td>
</tr>
<tr>
<td>Method</td>
<td>ASTM D 93</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>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>-23 °C (-9 °F)</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>168 - 354 °C (334 - 669 °F)</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>13.00 kPa</td>
</tr>
<tr>
<td>Method</td>
<td>at 40 °C (104 °F)</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.87</td>
</tr>
<tr>
<td>at 16 °C (61 °F)</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.8471 g/cm3</td>
</tr>
<tr>
<td>Method</td>
<td>ASTMD 4052</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Negligible</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>2.4 cSt</td>
</tr>
<tr>
<td>Method</td>
<td>at 40 °C (104 °F)</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
</tbody>
</table>

## SECTION 10: Stability and reactivity

### Chemical stability

This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### Possibility of hazardous reactions
Diesel PC-9-HS Test Fuel

Conditions to avoid: Heat, flames and sparks.

Materials to avoid: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products: Hydrocarbons
Carbon oxides

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

SECTION 11: Toxicological information

Acute oral toxicity
Diesel fuel
LD50: > 5,000 mg/kg
Species: Rat
Sex: male and female
Method: OECD Test Guideline 401

Acute inhalation toxicity
Diesel fuel
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
LD50 Dermal: > 4,300 mg/kg
Species: Rabbit
Sex: male and female
Test substance: yes

Skin irritation
Diesel fuel
Irritating to skin.

Eye irritation
Diesel fuel
No eye irritation

Sensitization
Diesel fuel
Did not cause sensitization on laboratory animals.

Repeated dose toxicity
Diesel fuel
Species: Rat, Male and female
Sex: Male and female
Application Route: Dermal
Dose: 0, 30, 125, 500 mg/kg
Exposure time: 13 wks

SDS Number: 100000001030
Diesel PC-9-HS Test Fuel

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

Carcinogenicity

Diesel fuel
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
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 PC-9-HS Test Fuel
Aspiration toxicity
May be fatal if swallowed and enters airways.

CMR effects

Diesel fuel
Carcinogenicity: Limited evidence of carcinogenicity in animal studies
Teratogenicity: Animal testing did not show any effects on fetal development.
Diesel PC-9-HS Test Fuel

Further information: Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Diesel fuel: 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: EC50: 68 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae

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

Biodegradability

Diesel fuel: aerobic
Result: Not readily biodegradable.
57.5 %
Testing period: 28 d
Method: OECD Test Guideline 301F

Ecotoxicology Assessment

Acute aquatic toxicity
Diesel fuel: Toxic to aquatic life.

Chronic aquatic toxicity
Diesel fuel: Toxic to aquatic life with long lasting effects.

Results of PBT assessment
Diesel fuel: Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information: Toxic to aquatic life with long lasting effects.
SECTION 13: Disposal considerations

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 ditches with chemical or used container. Send to a licensed waste management company.

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

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, COMBUSTIBLE LIQUID, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (DIESEL FUEL), 9, III, (60,6 °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)
### SECTION 15: Regulatory information

**National legislation**

**Chemical Safety Assessment**

**Ingredients**: Fuels, diesel, no. 2 270-676-1

**Major Accident Hazard Legislation**: 96/82/EC  Update: Not applicable

**Water contaminating class** (Germany) : WGK 3 highly water endangering

**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 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**

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

**SDS Number**:100000001030
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>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
</tr>
<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</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 %
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 waste water: 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.
## 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>Product characteristics</th>
<th>Remarks</th>
<th>: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
<th>Remarks</th>
<th>: With potential for aerosol generation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency and duration of use</td>
<td>Remarks</td>
<td>: Covers daily exposures up to 8 hours (unless stated differently)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other operational conditions affecting workers exposure</td>
<td>Remarks</td>
<td>: Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions and measures related to personal protection, hygiene and health evaluation</td>
<td>Wear suitable gloves tested to EN374.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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</th>
<th>: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
<th>Remarks</th>
<th>: With potential for aerosol generation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency and duration of use</td>
<td>Remarks</td>
<td>: Covers daily exposures up to 8 hours (unless stated differently)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other operational conditions affecting workers exposure</td>
<td>Remarks</td>
<td>: Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical conditions and measures</td>
<td>Drain down system prior to equipment opening or maintenance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions and measures related to personal protection, hygiene and health evaluation</td>
<td>Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.</td>
<td></td>
<td></td>
<td></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</th>
<th>: Liquid, vapour pressure &lt; 0.5 kPa at STP</th>
<th>Remarks</th>
<th>: With potential for aerosol generation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency and duration of use</td>
<td>Remarks</td>
<td>: Covers daily exposures up to 8 hours (unless stated differently)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SDS Number:100000001030 17/47
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>Air</td>
<td>0.46 mg/m³</td>
<td></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>0.00</td>
<td></td>
</tr>
</tbody>
</table>

SDS Number: 100000001030 18/47
### Diesel PC-9-HS Test Fuel

**SAFETY DATA SHEET**

**Version 1.5**

**Revision Date 2016-06-03**

<table>
<thead>
<tr>
<th>PROC, CS</th>
<th>ECETOC TRA</th>
<th>Modified</th>
<th>long-term – systemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1, CS85</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
</tr>
<tr>
<td>PROC1, CS85</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
</tr>
<tr>
<td>PROC2, CS15, CS85</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
</tr>
<tr>
<td>PROC3, CS15</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
</tr>
<tr>
<td>PROC3, CS2</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
</tr>
<tr>
<td>PROC4, CS16</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
</tr>
<tr>
<td>PROC8a, CS39</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
</tr>
<tr>
<td>PROC8b, CS501, CS503</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
</tr>
<tr>
<td>PROC15, CS36</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
</tr>
<tr>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS15: General exposures (closed systems)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS85: Bulk product storage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS15: General exposures (closed systems)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS85: Bulk product storage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SDS Number: 100000001030** 19/47
PROC3: Use in closed batch process (synthesis or formulation)
CS15: General exposures (closed systems)

PROC3: Use in closed batch process (synthesis or formulation)
CS2: Process sampling

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS16: General exposures (open systems)

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

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
CS501: Bulk closed loading and unloading
CS503: Bulk transfers (open systems)

PROC15: Use as laboratory reagent
CS36: Laboratory activities

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”).

1. Short title of Exposure Scenario: Distribution

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:100000001030 20/47
Diesel PC-9-HS Test Fuel

Version 1.5

Revision Date 2016-06-03

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
- PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC15: Use as laboratory reagent

Environmental release category:

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

Further information:

- Bulk 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. Excludes emissions during transport.

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, 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):

- 2.900

SDS Number: 100000001030
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 : 0.1 %
Emission or Release Factor: Water : 0.0001 %
Emission or Release Factor: Soil : 0.001 %

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: 0 %)
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 : Prevent discharge of undissolved substance to or recover from onsite wastewater.
Remarks : Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).
Remarks : No 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 : 2,000 m³/d
Effectiveness (of a measure) : 94.1 %
Percentage removed from waste water : 94.1 %

Conditions and measures related to external treatment of waste for disposal

Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

SDS Number:100000001030
Diesel PC-9-HS Test Fuel

Version 1.5

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

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)
## Diesel PC-9-HS Test Fuel

**SAFETY DATA SHEET**

**Revision Date** 2016-06-03

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

<table>
<thead>
<tr>
<th>Technical conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle substance within a closed system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organizational measures to prevent /limit releases, dispersion and exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No other specific measures identified.</td>
</tr>
</tbody>
</table>

### 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>Product characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td>Remarks : 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 : Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), 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: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

<table>
<thead>
<tr>
<th>Product characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td>Remarks : 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 : Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain down system prior to equipment opening or maintenance.</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 non-dedicated facilities

<table>
<thead>
<tr>
<th>SDS Number: 100000001030</th>
</tr>
</thead>
<tbody>
<tr>
<td>24/47</td>
</tr>
<tr>
<td><strong>Product characteristics</strong></td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

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

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

**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: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td></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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other operational conditions affecting workers exposure</strong></th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.</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: PROC15: Use as laboratory reagent

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td></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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other operational conditions affecting workers exposure</strong></th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>
## 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, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7</td>
<td>Hydrocarbon Block Method with Petrorisk</td>
<td>Air</td>
<td>0,024 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater</td>
<td>0,0018 mg/L</td>
<td>0,048</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>1,4 mg/kg wet weight</td>
<td>0,055</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,000057 mg/L</td>
<td>0,00083</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0,064 mg/kg wet weight</td>
<td>0,0019</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0,17 mg/kg wet weight</td>
<td>0,0017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 thermoplastics  
**ERC6d**: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers  
**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, 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>0,12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC1, CS15, 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>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>0,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC2, CS15, 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>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>0,49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC3, CS2</td>
<td>ECETOC TRA</td>
<td>Worker – inhalation</td>
<td>3 mg/m³</td>
<td>0,04</td>
<td></td>
</tr>
</tbody>
</table>
## Diesel PC-9-HS Test Fuel

### SAFETY DATA SHEET

**Version 1.5**  
**Revision Date 2016-06-03**

<table>
<thead>
<tr>
<th>PROC, CS</th>
<th>ECETOC TRA</th>
<th>Modified</th>
<th>long-term – systemic</th>
<th>0,34 mg/kg/d</th>
<th>0,12</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC4, CS16</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,16</td>
<td></td>
</tr>
<tr>
<td>PROC8a, CS39</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,55</td>
<td></td>
</tr>
<tr>
<td>PROC8b, CS501, CS503</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,50</td>
<td></td>
</tr>
<tr>
<td>PROC9, CS6</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0,19</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)  
**CS67:** Storage

**PROC3:** Use in closed batch process (synthesis or formulation)  
**CS2:** Process sampling

**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises  
**CS16:** General exposures (open systems)

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

**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities  
**CS501:** Bulk closed loading and unloading  
**CS503:** Bulk transfers (open systems)

**PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including
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).

1. Short title of Exposure Scenario: **Use as an intermediate**

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU3, SU8, SU9: Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals</td>
</tr>
<tr>
<td>Process category</td>
<td>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</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)</td>
</tr>
<tr>
<td>Further information</td>
<td>Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, weighing)</td>
</tr>
</tbody>
</table>

SDS Number: 100000001030 28/47
2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics
Remarks: Substance is complex UVCB., Predominantly hydrophobic.

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe) = 410,000

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: 0,1 %
Emission or Release Factor: Water: 0,003 %
Emission or Release Factor: Soil: 0,1 %

Technical conditions and measures / Organizational measures
Air: Treat air emission to provide a typical removal efficiency of (%) (Effectiveness: 80 %)
Water: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 51,6 %)
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: 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
**Diesel PC-9-HS Test Fuel**

**Waste treatment**
- This substance is consumed during use and no waste of the substance is generated.

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

**Recovery Methods**
- This substance is consumed during use and 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**

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

**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.
## Diesel PC-9-HS Test Fuel

### 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)

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td></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</td>
</tr>
<tr>
<td>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</td>
</tr>
<tr>
<td>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

### Technical conditions and measures
Handle substance within a closed system.

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

### 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>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
</tr>
<tr>
<td>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</td>
</tr>
<tr>
<td>Operation is carried out at elevated temperature (&gt; 20°C above ambient temperature), Assumes a good basic standard of occupational hygiene is implemented.</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>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
<tr>
<td></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</td>
</tr>
<tr>
<td>Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

SDS Number:100000001030
### Diesel PC-9-HS Test Fuel

#### SAFETY DATA SHEET

**Version 1.5**  
**Revision Date 2016-06-03**

<table>
<thead>
<tr>
<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>
</table>

### Other operational conditions affecting workers exposure

#### 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

<table>
<thead>
<tr>
<th>Remarks</th>
<th>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>

#### Frequency and duration of use

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
</table>

#### Other operational conditions affecting workers exposure

<table>
<thead>
<tr>
<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>
</table>

#### 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

<table>
<thead>
<tr>
<th>Remarks</th>
<th>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>

#### Frequency and duration of use

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Covers daily exposures up to 8 hours (unless stated differently)</th>
</tr>
</thead>
</table>

#### Other operational conditions affecting workers exposure

<table>
<thead>
<tr>
<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>
</table>

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

No other specific measures identified.
### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC6a</td>
<td>Hydrocarbon Block Method with PetrORisk</td>
<td>Air</td>
<td>Freshwater</td>
<td>0.022 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>0.0045 mg/L</td>
<td>0.067</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.000057 mg/L</td>
<td>0.0067</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.079 mg/kg wet weight</td>
<td>0.085</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0.17 mg/kg wet weight</td>
<td>0.0017</td>
<td></td>
</tr>
</tbody>
</table>

**ERC6a**: Industrial use resulting in manufacture of another substance (use of intermediates)

### 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>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>0.11</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td></td>
<td></td>
</tr>
<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>
<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></td>
<td></td>
<td></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>
<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></td>
<td></td>
<td></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>
<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></td>
<td></td>
</tr>
<tr>
<td>PROC3, CS2</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>2.1 mg/m³</td>
<td>0.03</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></td>
<td></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>
<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>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SDS Number: 100000001030
### Diesel PC-9-HS Test Fuel

**Version 1.5**

<table>
<thead>
<tr>
<th>PROC &amp; CS</th>
<th>ECETOC TRA</th>
<th>Exposure Scenario</th>
<th>Limit</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<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>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>0.50</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

PROC3: Use in closed batch process (synthesis or formulation)
CS15: General exposures (closed systems)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS16: General exposures (open systems)

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

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
CS501: Bulk closed loading and unloading
CS503: Bulk transfers (open systems)

PROC15: Use as laboratory reagent
CS36: Laboratory activities

### 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).

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)

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): 5.000
## 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: 0.5 %
  - Emission or Release Factor: Water: 0.001 %
  - Emission or Release Factor: Soil: 0 %

## 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 %)
- **Remarks**: Risk from environmental exposure is driven by freshwater sediment.
- **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**: 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

- **SDS Number**: 100000001030
- **Page**: 36/47
## Diesel PC-9-HS Test Fuel

### 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.

#### 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

---

SDS Number: 100000001030
Diesel PC-9-HS Test Fuel

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)

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.

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
- 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.

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
Diesel PC-9-HS Test Fuel

Version 1.5
Revision Date 2016-06-03

fuel sources, limited exposure to unburned product to be expected

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.

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>ERC7</td>
<td>Hydrocarbon Block Method with Petrotak</td>
<td>Air</td>
<td>0.29 mg/m3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater</td>
<td>0.055 mg/L</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>2.1 mg/kg wet weight</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.0055 mg/L</td>
<td>0.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.21 mg/kg wet weight</td>
<td>0.091</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0.17 mg/kg wet weight</td>
<td>0.01</td>
<td></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>0.49</td>
<td></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 –</td>
<td>0.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Diesel PC-9-HS Test Fuel**

**Version 1.5**  
**Revision Date 2016-06-03**

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>systemic Combined routes</th>
</tr>
</thead>
</table>
| PROC2, CS67 | Modified | Worker – inhalation, long-term – systemic | 1 mg/m3 | 0,01  
|         |           | Worker – dermal, long-term – systemic | 0,14 mg/kg/d | 0,05  
|         |           | Worker – long-term – systemic Combined routes |  | 0,06  
| PROC3, CS107 | Modified | Worker – inhalation, long-term – systemic | 1 mg/m3 | 0,01  
|         |           | Worker – dermal, long-term – systemic | 0,34 mg/kg/d | 0,12  
|         |           | Worker – long-term – systemic Combined routes |  | 0,13  
| PROC8a, CS39, CS103 | Modified | Worker – inhalation, long-term – systemic | 1 mg/m3 | 0,01  
|         |           | Worker – dermal, long-term – systemic | 13,71 mg/kg/d | 0,47  
|         |           | Worker – long-term – systemic Combined routes |  | 0,49  
| PROC8b, CS8, CS14 | Modified | Worker – inhalation, long-term – systemic | 5 mg/m3 | 0,07  
|         |           | Worker – dermal, long-term – systemic | 6,86 mg/kg/d | 0,47  
|         |           | Worker – long-term – systemic Combined routes |  | 0,55  
| PROC16, CS107 | Modified | Worker – inhalation, long-term – systemic | 1 mg/m3 | 0,03  
|         |           | Worker – dermal, long-term – systemic | 0,03 mg/kg/d | 0,01  
|         |           | Worker – long-term – systemic Combined routes |  | 0,02  

**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)

**SDS Number:** 1000000001030
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).

1. Short title of Exposure Scenario: Use as a fuel – professional

Main User Groups: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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:
ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor 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: ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics
Remarks: Substance is complex UVCB., Predominantly hydrophobic.
**Diesel PC-9-HS Test Fuel**

**Version 1.5**

**Revision Date**: 2016-06-03

<table>
<thead>
<tr>
<th><strong>Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): (Msafe)</strong></th>
<th>140,000</th>
</tr>
</thead>
</table>

**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**: 365

**Technical conditions and measures / Organizational measures**

- **Air**: Release fraction to air from wide dispersive use (regional use only)
  - **Remarks**: < 0.001 %
- **Water**: Release fraction to wastewater wide dispersive use
  - **Remarks**: < 0.001 %
- **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**: No wastewater treatment required.
  - **Remarks**: Treat air emission to provide a typical removal efficiency of (%):
  - **Remarks**: Not applicable
- **Water**: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
  - **Remarks**: If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
  - **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**: 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...
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.
## 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)

**Product characteristics**

<table>
<thead>
<tr>
<th>Remarks</th>
<th>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>

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

### 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**

<table>
<thead>
<tr>
<th>Remarks</th>
<th>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>

**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. |

### 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**

<table>
<thead>
<tr>
<th>Remarks</th>
<th>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>

**Frequency and duration of use**

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

---

SDS Number:100000001030 44/47
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
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
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></td>
<td>Freshwater</td>
<td>0.0015 mg/L</td>
<td>0.043</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>1.4 mg/kg wet weight</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.000028 mg/L</td>
<td>0.00041</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.063 mg/kg wet weight</td>
<td>0.0014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0.17 mg/kg wet weight</td>
<td>0.0054</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></td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worker – dermal, long-</td>
<td>1.34 mg/kg/d</td>
<td>0.46</td>
</tr>
</tbody>
</table>

SDS Number:100000001030 45/47
<table>
<thead>
<tr>
<th>PROC</th>
<th>CS</th>
<th>ECETOC TRA</th>
<th>Modified</th>
<th>Worker – inhalation, long-term – systemic</th>
<th>0.01 mg/m³</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO2</td>
<td>CS15</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – dermal, long-term – systemic</td>
<td>1.34 mg/kg/d</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>PRO3</td>
<td>CS107</td>
<td>ECETOC TRA</td>
<td>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></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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.13</td>
</tr>
<tr>
<td>PRO8a</td>
<td>CS39</td>
<td>ECETOC TRA</td>
<td>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></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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.49</td>
</tr>
<tr>
<td>PRO8a</td>
<td>CS103</td>
<td>ECETOC TRA</td>
<td>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></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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.55</td>
</tr>
<tr>
<td>PRO8b</td>
<td>CS14</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>CS507</td>
<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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.55</td>
</tr>
<tr>
<td>PRO8b</td>
<td>CS8</td>
<td>ECETOC TRA</td>
<td>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></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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.49</td>
</tr>
<tr>
<td>PRO16</td>
<td>CS107</td>
<td>ECETOC TRA</td>
<td>Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>14 mg/m³</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<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></td>
<td></td>
<td>Worker – long-term – systemic Combined</td>
<td></td>
<td>0.32</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)

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)

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).