



Diesel PC-9-HS Test Fuel

Version 1.7

Revision Date 2023-07-19

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

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

1.1 Product identifier

Product information

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

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Diesel fuel, no. 2	68476-34-6 270-676-1 649-227-00-2	Chevron Phillips Chemicals International NV 01-2119475502-40-0023

1.2

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

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

1.3

Details of the supplier of the safety data sheet

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

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

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

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1.4**Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Gifftlinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic

Poisoning and Drug Information Center, Hipokrāta 2, Rīga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

Norway: 22 59 13 00 (24 hours/day, 7 days/week)

Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Portugal: CIAV phone number: +351 800 250 250

Romania: +40213183606

Slovakia: +421 2 5477 4166

Slovenia: Phone number: 112

Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

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

SECTION 2: Hazards identification**2.1****Classification of the substance or mixture
REGULATION (EC) No 1272/2008**

Flammable liquids, Category 3

H226:





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Short-term (acute) aquatic hazard, Category 2	Flammable liquid and vapor. H401: Toxic to aquatic life.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin irritation, Category 2	H315: Causes skin irritation.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure, Category 2, Liver	H373: May cause damage to organs through prolonged or repeated exposure.
, Blood	
, thymus	
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

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

Hazard pictograms	:	   																				
Signal Word	:	Danger																				
Hazard Statements	:	<table border="0"> <tr> <td>H226</td> <td>Flammable liquid and vapor.</td> </tr> <tr> <td>H304</td> <td>May be fatal if swallowed and enters airways.</td> </tr> <tr> <td>H315</td> <td>Causes skin irritation.</td> </tr> <tr> <td>H332</td> <td>Harmful if inhaled.</td> </tr> <tr> <td>H351</td> <td>Suspected of causing cancer.</td> </tr> <tr> <td>H373</td> <td>May cause damage to organs (Liver, Blood, thymus) through prolonged or repeated exposure.</td> </tr> <tr> <td>H411</td> <td>Toxic to aquatic life with long lasting effects.</td> </tr> </table>	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, Blood, thymus) through prolonged or repeated exposure.	H411	Toxic to aquatic life with long lasting effects.						
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Hazardous ingredients which must be listed on the label:

- 68476-34-6 Diesel fuel, no. 2

2.3**Other hazards**

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

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.1 - 3.2****Substance or Mixture**

Molecular formula : Mixture

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
Diesel fuel, no. 2	68476-34-6 270-676-1 649-227-00-2	Flam. Liq. 3; H226 Acute Tox. 4; H332 Skin Irrit. 2; H315 Carc. 2; H351 STOT RE 2; H373 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	100	
Naphthalene	91-20-3 202-049-5 601-052-00-2	Flam. Sol. 2; H228 Acute Tox. 4; H302 Carc. 2; H351 STOT RE 1; H372 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	0 - 1	

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

SECTION 4: First aid measures**4.1****Description of first-aid measures**

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a

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- serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed**Notes to physician**

- Symptoms : No data available.
- Risks : No data available.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No data available.

SECTION 5: Firefighting measures

- Flash point : 54,4°C (129,9°F)
Method: ASTM D 93

- Autoignition temperature : No data available

5.1**Extinguishing media**

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

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

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

5.3**Advice for firefighters**

- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

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

Hazardous decomposition products : Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures**6.1****Personal precautions, protective equipment and emergency procedures**

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

6.2**Environmental precautions**

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

6.3**Methods and materials for containment and cleaning up**

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

6.4**Reference to other sections**

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

SECTION 7: Handling and storage**7.1****Precautions for safe handling
Handling**

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take 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 a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

7.2**Conditions for safe storage, including any incompatibilities**

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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****PT**

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Diesel fuel, no. 2	PT OEL	VLE-MP	100 mg/m3	P, A3,
	PT OEL	VLE-MP	100 mg/m3	P, A3, Fração inalável e vapor

A3 Agente carcinogénico confirmado nos animais de laboratório com relevância desconhecida no Homem.

P Perigo de absorção cutânea

LT

Komponentai	Šaltinis	Vertė	Kontrolės parametrai	Pastaba
Diesel fuel, no. 2	LT OEL	IPRD	200 mg/m3	
	LT OEL	TPRD	300 mg/m3	

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Diesel fuel, no. 2	HR OEL	GVI	100 ppm, 400 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Diesel fuel, no. 2	BE OEL	TGG 8 hr	100 mg/m3	D,
	BE OEL	TGG 8 hr	100 mg/m3	D, damp en aerosol

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

8.2**Exposure controls
Engineering measures**

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

Personal protective equipment

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

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may not provide adequate protection.

- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

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

SECTION 9: Physical and chemical properties**9.1****Information on basic physical and chemical properties****Appearance**

- Form : liquid
- Physical state : liquid at (101,30 kPa)
- Color : Pale yellow to brown (if undyed), red to purple (dyed)
- Odor : Mild

Safety data

- Flash point : 54,4°C (129,9°F)
Method: ASTM D 93
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Oxidizing properties : No
- Autoignition temperature : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable
- pH : Not applicable
- Pour point : -23°C (-9°F)
Method: ASTM D97

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Boiling point/boiling range	: 168-354°C (334-669°F)
Vapor pressure	: 13,00 kPa at 40°C (104°F) Method: ASTM D5191
Relative density	: 0,87 at 16 °C (61 °F)
Density	: 0,8471 g/cm3 Method: ASTM D4052
Water solubility	: negligible
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: 2,4 cSt at 40°C (104°F) Method: ASTM D 445
Relative vapor density	: No data available
Evaporation rate	: No data available
Percent volatile	: 100 %

9.2**Other information**

Conductivity : No data available

SECTION 10: Stability and reactivity**10.1****Reactivity** : Stable under recommended storage conditions.**10.2****Chemical stability** : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.**10.3****Possibility of hazardous reactions****Hazardous reactions** : Hazardous reactions: Vapors may form explosive mixture with air.**10.4****Conditions to avoid** : Heat, flames and sparks.**10.5****Materials to avoid** : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

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10.6

Hazardous decomposition products : Hydrocarbons
Carbon oxides

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

SECTION 11: Toxicological information**11.1****Information on toxicological effects****Acute oral toxicity**

Diesel fuel, no. 2 : LD50: > 5.000 mg/kg
Species: Rat
Sex: male and female
Method: OECD Test Guideline 401

Naphthalene : LD50: 500 mg/kg
Method: Converted acute toxicity point estimate

Acute inhalation toxicity

Diesel fuel, no. 2 : LC50: 4,1 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Test substance: yes

Acute dermal toxicity

Diesel fuel, no. 2 : LD50 Dermal: > 4.300 mg/kg
Species: Rabbit
Sex: male and female
Test substance: yes

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Skin irritation : Skin irritation

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Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

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Sensitization : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Diesel fuel, no. 2 : Species: Rat, Male and female
Sex: Male and female
Application Route: Dermal
Dose: 0, 30, 125, 500 mg/kg

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Exposure time: 13 wks
 Number of exposures: daily, 5 days/week
 NOEL: 30 mg/kg
 Method: OECD Guideline 411
 Target Organs: Thymus, Liver, Bone marrow
 Information given is based on data obtained from similar substances.

Species: Rat, Male and female
 Sex: Male and female
 Application Route: inhalation (dust/mist/fume)
 Dose: 0, 0.35, 0.88, 1.71 mg/l
 Exposure time: 13 wks
 Number of exposures: Twice/wk
 NOEL: > 1,71 mg/l
 Method: OECD Guideline 413

Genotoxicity in vitro

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

Test Type: Mouse lymphoma assay
 Result: negative

Naphthalene : Test Type: Ames test
 Result: negative

Test Type: Sister Chromatid Exchange Assay
 Result: negative

Test Type: Unscheduled DNA synthesis assay
 Result: negative

Genotoxicity in vivo

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

Naphthalene : Test Type: Mouse micronucleus assay
 Result: negative

Carcinogenicity

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

Naphthalene : Species: Mouse
 Sex: male
 Dose: 10, 30 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week

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Test substance: yes
 Print Date: No information available.
 Remarks: No evidence of carcinogenicity

Species: Mouse
 Sex: female
 Dose: 10, 30 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week
 Test substance: yes
 Print Date: No information available.
 Remarks: increased incidence of alveolar/bronchiolar adenomas

Species: Rat
 Sex: male and female
 Dose: 10, 30, 60 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week
 Test substance: yes
 Print Date: No information available.
 Remarks: nose respiratory epithelial adenoma, increased incidence of olfactory neuroblastomas

Developmental Toxicity

Diesel fuel, no. 2 : Species: Rat
 Application Route: Inhalation
 Dose: 0, 86.9, 408.8 ppm
 Number of exposures: 6 h/d
 Test period: GD 6-15
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 408.8 ppm
 NOAEL Maternal: 408.8 ppm
 Information given is based on data obtained from similar substances.

Species: Rat
 Application Route: Dermal
 Dose: 30, 125, 500, 1000 mg/kg
 Exposure time: daily
 Test period: GD 0-20
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 125 mg/kg
 Information given is based on data obtained from similar substances.

Naphthalene : Species: Rabbit
 Application Route: oral gavage
 Dose: 40, 200, 400 mg/kg
 Test period: 29 d, GD 6-18
 NOAEL Teratogenicity: 400 mg/kg

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Aspiration toxicity : May be fatal if swallowed and enters airways.

Specific Target Organ Toxicity (Repeated Exposure)
 Diesel fuel, no. 2 : Target Organs: Liver, Blood, thymus

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

Naphthalene

Target Organs: Eyes, Blood

Assessment: Causes damage to organs through prolonged or repeated exposure.

CMR effects

Diesel fuel, no. 2

: Carcinogenicity: Limited evidence of carcinogenicity in animal studies

Teratogenicity: Animal testing did not show any effects on fetal development.

Naphthalene

Carcinogenicity: Limited evidence of carcinogenicity in animal studies

11.2**Information on other hazards****Diesel PC-9-HS Test Fuel****Further information**

Endocrine disrupting properties

: Solvents may degrease the skin.

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information**12.1****Toxicity****Toxicity to fish**

Diesel fuel, no. 2

: LL50: 21 mg/l

Exposure time: 96 h

Species: Oncorhynchus mykiss (rainbow trout)

semi-static test Method: OECD Test Guideline 203

Naphthalene

LC50: 3,2 mg/l

Exposure time: 96 h

Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates

Diesel fuel, no. 2

: EC50: 2 mg/l

Exposure time: 48 h

Species: Daphnia magna (Water flea)

Method: OECD Test Guideline 202

Naphthalene

LC50: 2,16 mg/l

Exposure time: 48 h

Species: Daphnia magna (Water flea)

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Toxicity to algae

Diesel fuel, no. 2 : ErL50: 22 mg/l
 Exposure time: 72 h
 Species: Raphidocellus subcapitata (algae)
 static test Analytical monitoring: no
 Method: OECD Test Guideline 201

Naphthalene EC50: 2,96 mg/l
 Exposure time: 48 h
 Species: Selenastrum capricornutum (algae)

12.2**Persistence and degradability**

Biodegradability

Diesel fuel, no. 2 : aerobic
 Result: Not readily biodegradable.
 57,5 %
 Testing period: 28 d
 Method: OECD Test Guideline 301F

12.3**Bioaccumulative potential**

Bioaccumulation

Diesel fuel, no. 2 : Accumulation in aquatic organisms is expected.

12.4**Mobility in soil**

Mobility

Diesel fuel, no. 2 : No data available

12.5**Results of PBT and vPvB assessment**

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

12.6**Endocrine disrupting properties**

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7**Other adverse effects**

Additional ecological information : Toxic to aquatic life with long lasting effects.

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12.8**Additional Information****Ecotoxicology Assessment**

Short-term (acute) aquatic hazard : Toxic to aquatic life.

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

SECTION 13: Disposal considerations**13.1****Waste treatment methods**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or 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**14.1 - 14.7****Transport information**

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

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

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN1202, DIESEL FUEL, COMBUSTIBLE LIQUID, III
RECLASSIFIED IN ACCORDANCE WITH EXCEPTION IN 49 CFR 173.150(F)(1).

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1202, DIESEL FUEL, 3, III, (54,4 °C c.c.), MARINE POLLUTANT, (DIESEL FUEL)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1202, DIESEL FUEL, 3, III

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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))

30,UN1202,DIESEL FUEL, 3, III, ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN1202, DIESEL FUEL, 3, III, ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

Maritime transport in bulk according to IMO instruments**SECTION 15: Regulatory information****15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture
National legislation**

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Water hazard class (Germany) : WGK 3 highly water endangering**15.2****Chemical Safety Assessment****Components** : Fuels, diesel, no. 2 270-676-1**Major Accident Hazard Legislation** : 96/82/EC Update:
Not applicable: ZEU_SEVES3 Update:
FLAMMABLE LIQUIDS
P5c
Quantity 1: 5.000 t
Quantity 2: 50.000 t: ZEU_SEVES3 Update:
ENVIRONMENTAL HAZARDS
E2
Quantity 1: 200 t
Quantity 2: 500 t: ZEU_SEVES3 Update:
Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d)

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heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

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Quantity 1: 2.500 t

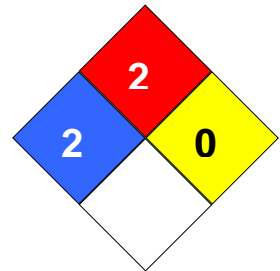
Quantity 2: 25.000 t

Notification status

Europe REACH	:	This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Other 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	:	All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem's notifications or if the Importer of Record themselves notified the substances.
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	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.

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.

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

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

H226	Flammable liquid and vapor.
H228	Flammable solid.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H401	Toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

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Emission or Release Factor: Water : 0,003 %
 Emission or Release Factor: Soil : 0,01 %

Technical conditions and measures / Organizational measures

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

Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of \geq (%): (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 \geq (%): (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.

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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

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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**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.

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**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

Drain down system prior to equipment opening or maintenance.

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

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

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

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

Frequency and duration of use

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

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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.

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**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC1	Hydrocarbon Block Method with Petrorisk		Air		0,46 mg/m3	
			Freshwater		0,036 mg/L	0,54
			Freshwater sediment		1,4 mg/kg wet weight	0,61
			Marine water		0,0036 mg/L	0,054
			Marine sediment		0,14 mg/kg wet weight	0,061
			Agricultural soil		0,17 mg/kg wet weight	0,015

ERC1: Manufacture of substances

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA		Worker – inhalation,	0,01 mg/m3	0,00

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	Modified		long-term – systemic		
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,11
			Worker – long-term – systemic Combined routes		0,11
PROC1, CS85	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC2, CS15, CS85	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC3, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	3 mg/m3	0,04
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,16
PROC3, CS2	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	2,1 mg/m3	0,03
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,15
PROC4, CS16	ECETOC TRA 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
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	2 mg/m3	0,03
			Worker – dermal, long-term – systemic	13,71 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,50
PROC8b, CS501, CS503	ECETOC TRA 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
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	5 mg/m3	0,07
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,19

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

PROC1: Use in closed process, no likelihood of exposure
CS85: Bulk product storage

PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
CS85: Bulk product storage

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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)

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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 \geq (%): (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 \geq (%): (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

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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)

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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

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**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.

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**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

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

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

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.

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Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	Hydrocarbon Block Method with Petrorisk		Air		0,024 mg/m3	
			Freshwater		0,0018 mg/L	0,048
			Freshwater sediment		1,4 mg/kg wet weight	0,055
			Marine water		0,000057 mg/L	0,00083
			Marine sediment		0,064 mg/kg wet weight	0,0019
			Agricultural soil		0,17 mg/kg wet weight	0,0017

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

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,01 mg/m3	0,00
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,12
PROC1, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC2, CS15, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC3, CS2	ECETOC TRA		Worker – inhalation,	3 mg/m3	0,04

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	Modified		long-term – systemic		
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,16
PROC4, CS16	ECETOC TRA 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
PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	2 mg/m3	0,03
			Worker – dermal, long-term – systemic	13,71 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,50
PROC8b, CS501, CS503	ECETOC TRA 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
PROC9, CS6	ECETOC TRA 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
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	5 mg/m3	0,07
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,19

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

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weighing)
 CS6: Drum and small package filling

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 an intermediate

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	:	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Further information	:	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,

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road/rail car and bulk container).

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 : 410.000
 (MSafe) based on release
 following total wastewater
 treatment removal (kg/d):(Msafe)

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 \geq (%): (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 \geq (%): (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 waste water : 94,1 %

Conditions and measures related to external treatment of waste for disposal

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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.

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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

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**Product characteristics**

Remarks : Liquid, vapour pressure < 0.5 kPa at STP

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.

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**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)

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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

Drain down system prior to equipment opening or maintenance.

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

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

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

Remarks : Liquid, vapour pressure < 0.5 kPa at STP
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.

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.

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3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC6a	Hydrocarbon Block Method with Petrorisk		Air		0,022 mg/m3	
			Freshwater		0,0045 mg/L	0,067
			Freshwater sediment		1,5 mg/kg wet weight	0,12
			Marine water		0,000057 mg/L	0,0067
			Marine sediment		0,079 mg/kg wet weight	0,085
			Agricultural soil		0,17 mg/kg wet weight	0,0017

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

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,01 mg/m3	0,00
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,11
			Worker – long-term – systemic Combined routes		0,11
PROC1, CS85	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC2, CS15, CS85	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC3, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	3 mg/m3	0,04
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,16
PROC3, CS2	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	2,1 mg/m3	0,03
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,15
PROC4, CS16	ECETOC TRA 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

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PROC8a, CS39	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	2 mg/m3	0,03
			Worker – dermal, long-term – systemic	13,71 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,50
PROC8b, CS501, CS503	ECETOC TRA 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
PROC15, CS36	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	5 mg/m3	0,07
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,19

PROC1: Use in closed process, no likelihood of exposure

CS15: General exposures (closed systems)

PROC1: Use in closed process, no likelihood of exposure

CS85: Bulk product storage

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)

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

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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): (Msafe)	:	5.000

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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 \geq (%) (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 \geq (%) (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 waste water : 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

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

Other operational conditions affecting workers exposure

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

Technical conditions and measures

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

Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

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

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

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

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

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

Technical conditions and measures

Store substance within a closed system.

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

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

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

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

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

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

Technical conditions and measures

Drain down system prior to equipment opening or maintenance.

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

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

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

Remarks : Liquid, vapour pressure < 0.5 kPa at STP
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

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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**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC7	Hydrocarbon Block Method with Petrorisk		Air		0,29 mg/m3	
			Freshwater		0,055 mg/L	0,8
			Freshwater sediment		2,1 mg/kg wet weight	0,91
			Marine water		0,0055 mg/L	0,08
			Marine sediment		0,21 mg/kg wet weight	0,091
			Agricultural soil		0,17 mg/kg wet weight	0,01

ERC7: Industrial use of substances in closed systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC1, CS67	ECETOC TRA 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
PROC2, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,37 mg/kg/d	0,47
			Worker – long-term –		0,49

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			systemic Combined routes		
PROC2, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m ³	0,01
			Worker – dermal, long-term – systemic	0,14 mg/kg/d	0,05
			Worker – long-term – systemic Combined routes		0,06
PROC3, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m ³	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	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m ³	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	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	5 mg/m ³	0,07
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,55
PROC16, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m ³	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)

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

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).
Remarks : No wastewater treatment required.
Air : 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 \geq (%): (Effectiveness: 0 %)
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of \geq (%): (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 waste water : 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

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applicable local and/or national regulations.

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

Remarks Substance is complex UVCB., Predominantly hydrophobic.

Remarks : Liquid, vapour pressure < 0.5 kPa at STP

Remarks : With potential for aerosol generation.

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

Technical conditions and measures

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

Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

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

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

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

Remarks : Liquid, vapour pressure < 0.5 kPa at STP

Remarks : With potential for aerosol generation.

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

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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**

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

Frequency and duration of use

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

Other operational conditions affecting workers exposure

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

Organizational measures to prevent /limit releases, dispersion and exposure

No other specific measures identified.

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

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

Frequency and duration of use

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

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: 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)

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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**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
ERC9a, ERC9b	Hydrocarbon Block Method with Petrorisk		Air		0,02 mg/m ³	
			Freshwater		0,0015 mg/L	0,043
			Freshwater sediment		1,4 mg/kg wet weight	0,05
			Marine water		0,000028 mg/L	0,00041
			Marine sediment		0,063 mg/kg wet weight	0,0014
			Agricultural soil		0,17 mg/kg wet weight	0,0054

ERC9a: Wide dispersive indoor use of substances in closed systems

ERC9b: Wide dispersive outdoor use of substances in closed systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio (PEC/PNEC):
PROC1, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m ³	0,01
			Worker – dermal, long-	1,34 mg/kg/d	0,46

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			term – systemic		
			Worker – long-term – systemic Combined routes		0,48
PROC1, CS67	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	0,01 mg/m3	0,00
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,12
PROC2, CS15	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	1,34 mg/kg/d	0,46
			Worker – long-term – systemic Combined routes		0,48
PROC3, CS107	ECETOC TRA 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	ECETOC TRA 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
PROC8a, CS103	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	5 mg/m3	0,07
			Worker – dermal, long-term – systemic	13,71 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,55
PROC8b, CS14, CS507	ECETOC TRA 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
PROC8b, CS8	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	1 mg/m3	0,01
			Worker – dermal, long-term – systemic	6,86 mg/kg/d	0,47
			Worker – long-term – systemic Combined routes		0,49
PROC16, CS107	ECETOC TRA Modified		Worker – inhalation, long-term – systemic	14 mg/m3	0,20
			Worker – dermal, long-term – systemic	0,34 mg/kg/d	0,12
			Worker – long-term – systemic Combined routes		0,32

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)

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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>).