# Diesel No. 2 Test Fuel

Version 1.12 Revision Date 2024-05-21

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 No. 2 Test Fuel
Material : 1126733, 1126729, 1126732, 1126728, 1126711, 1126727, 1126710, 1126726, 1126205, 1125693, 1124271, 1101406, 1117144, 1114932, 1114380, 1114379, 1111796, 1111792, 1111793, 1111721, 1108397, 1097307, 1096433, 1083233, 1096612, 1084817, 1097324, 1097322, 1097310, 1089768, 1079939, 1097309, 1090864, 1077073, 1077061, 1090863, 1069145, 1100027, 1099634, 1090866, 1099603, 1090314, 1097785, 1087561, 1092489, 1076410, 1102501, 1097387, 1090432, 1090433, 1100452, 1097386, 1078955, 1100842, 1077075, 1097308, 1100531, 1069147, 1090862, 1078060, 1077077, 1068920, 1078988, 1017963, 1017962, 1036152, 1024299, 1024300, 1017964, 1024301, 1017977, 1024303, 1017981, 1017980, 1017965, 1017978, 1017967, 1017966, 1017979, 1024297, 1024293, 1029744, 1024292, 1017982, 1024294, 1024296, 1024302, 1024304, 1024309, 1024308, 1024307, 1024306, 1024295, 1024305, 1024298, 1029490, 1104964, 1104939, 1104952, 1104938, 1104941, 1104963, 1104956, 1104955, 1104953

**EC-No.Registration number**

| Chemical name | CAS-No.<br>EC-No.<br>Index No. | Legal Entity<br>Registration number |
|---|---|---|
| Diesel fuel, no. 2 | 68476-34-6<br>270-676-1<br>649-227-00-2 | Chevron Phillips Chemicals International NV<br>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
Specialty Chemicals
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

**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 (Giftlinjen): +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: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02 66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù Tel. +39 06 68593726;POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000; POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326; POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870; POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055 7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382 24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883 300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011 858;
Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, 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:<br>Flammable liquid and vapor. |
| Short-term (acute) aquatic hazard, Category 2 | H401:<br>Toxic to aquatic life. |
| Acute toxicity, Category 4 | H332:<br>Harmful if inhaled. |
| Skin irritation, Category 2 | H315:<br>Causes skin irritation. |
| Carcinogenicity, Category 2 | H351:<br>Suspected of causing cancer. |
| Specific target organ toxicity - repeated exposure, Category 2, Liver | H373:<br>May cause damage to organs through prolonged or repeated exposure. |
| , Blood | |
| , thymus | |
| Aspiration hazard, Category 1 | H304:<br>May be fatal if swallowed and enters airways. |
| Long-term (chronic) aquatic hazard, Category 2 | H411:<br>Toxic to aquatic life with long lasting effects. |

**2.2**

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

Hazard pictograms :

| | | | |
|---|---|---|---|
| Signal Word | : | Danger | |
| Hazard Statements | : | H226 | Flammable liquid and vapor. |
| | | H304 | May be fatal if swallowed and enters airways. |
| | | H315 | Causes skin irritation. |

| | | |
|---|---|---|
| | H332 | Harmful if inhaled. |
| | H351 | Suspected of causing cancer. |
| | H373 | May cause damage to organs (Liver, Blood, thymus) through prolonged or repeated exposure. |
| | H411 | Toxic to aquatic life with long lasting effects. |

Precautionary Statements : **Prevention:**

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

**Response:**

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

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

**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**

Synonyms : Diesel 0.05 LS Emiss Cert Test Fuel- Cummins
Diesel 2007 Emission Certification Fuel
Diesel CEC (RF-73-T-90)
Diesel Euro-II Cert Fuel
Diesel Euro-IV Cert Fuel
Diesel Reference Fuels, Diesel Cert Fuel, Oil Classification Diesel
Diesel 0.05 LS Emiss Cert Test Fuel- ITE
Diesel Euro-III Cert Fuel

Diesel Special Test Fuel
Locomotive Diesel Certification Fuel
PC-10 Diesel Test Fuel
Diesel CEC (RF-03-A-84)
Ultra High Cetane Check Fuel (ASTM) Diesel
Diesel 2004 Tier 2 Fuel
0.05% Sulfur Diesel Fuel - JASO
No Sulfur (less than 3 PPM) Diesel Test Fuel
Diesel Caterpillar F173
Diesel Caterpillar 1E2973
Caterpillar China Certification Diesel Fuel Stage III
DIESEL PC-10 TEST FUEL

Molecular formula : UVCB

**Hazardous ingredients**

| Chemical name | CAS-No.<br>EC-No.<br>Index No. | Classification (REGULATION (EC) No 1272/2008) | Concentration [wt%] | Specific Conc. Limits, M-factors and ATEs |
|---|---|---|---|---|
| **Diesel fuel, no. 2** | **68476-34-6**<br>**270-676-1**<br>649-227-00-2 | Flam. Liq. 3; H226<br>Acute Tox. 4; H332<br>Skin Irrit. 2; H315<br>Carc. 2; H351<br>STOT RE 2; H373<br>Asp. Tox. 1; H304<br>Aquatic Chronic 2; H411 | 100 | |
| Naphthalene | 91-20-3<br>202-049-5<br>601-052-00-2 | Flam. Sol. 2; H228<br>Acute Tox. 4; H302<br>Carc. 2; H351<br>Aquatic Acute 1; H400<br>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 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. Do NOT induce vomiting. Do not

give milk or alcoholic beverages. 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**

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

## SECTION 5: Firefighting measures

| | | |
|---|---|---|
| Flash point | : | 47°C (117°F) minimum |
| Autoignition temperature | : | No data available |

**5.1 Extinguishing media**

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

**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. |
| 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. |
| | | 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.
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**

**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

**SK**

| Zložky | Podstata | Hodnota | Kontrolné parametre | Poznámka |
|---|---|---|---|---|
| Naphthalene | SK OEL | NPEL priemerný | 10 ppm, 50 mg/m3 | K, |
| | SK OEL | NPEL krátkodobý | 15 ppm, 80 mg/m3 | K, |

K Znamená, ze faktor môže byt' l'ahko absorbovaný kožou. Niektoré faktory, ktoré l'ahko prenikajú kožou, môžu spôsobovat' až smrtel'né otravy, éasto bez varovných príznakov (napr. anilín, nitrobenzén, nitroglykol, fenoly a pod.). Pri látkach s významným prienikom cez kožu, éi už v podobe kvapalín alebo pár, je osobitne dôležité zabránit' kožnému kontaktu.

**SI**

| Sestavine | Osnova | Vrednost | Parametri nadzora | Pripomba |
|---|---|---|---|---|
| Naphthalene | SI OEL | MV | 10 ppm, | 2, K, |
| | SI OEL | MV | 50 mg/m3 | 2, K, Inhalabilna frakcija |
| | SI OEL | KTV | 10 ppm, | 2, K, |
| | SI OEL | KTV | 50 mg/m3 | 2, K, Inhalabilna frakcija |

2 Rakotvorne snovi - kategorija 2
K Lastnost lažjega prehajanja snovi v organizem skozi kožo

**SE**

| Beståndsdelar | Grundval | Värde | Kontrollparametrar | Anmärkning |
|---|---|---|---|---|
| Naphthalene | SE AFS | NGV | 10 ppm, 50 mg/m3 | |
| | SE AFS | KGV | 15 ppm, 80 mg/m3 | V, |

V Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas

**RU**

| Компоненты | Основа | Величина | Параметры контроля | Заметка |
|---|---|---|---|---|
| Нафталин | RU OEL | ПДК разовая | 20 mg/m3 | 4, пары и/или газы |
| | RU OEL | ПДК разовая | 20 mg/m3 | 4, пары и/или газы |

4 4 класс - умеренно опасные

**RS**

| Компоненты | Основа | Величина | Параметры контроля | Заметка |
|---|---|---|---|---|
| Нафталин | RS OEL | GVI | 10 ppm, 50 mg/m3 | Carc. cat. 3, EU, |

Carc. cat. 3 Chemical substances that cause concern about possible carcinogenic effects for humans
EU Substance mentioned in indicative exposure limit values in Directive 91/322 / EEC

**RO**

| Componente | Sursă | Valoare | Parametri de control | Notă |
|---|---|---|---|---|
| Naphthalene | RO OEL | TWA | 10 ppm, 50 mg/m3 | C2, |

C2 susceptibil de a provoca apariţia cancerului

**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 |
| Naphthalene | PT OEL | VLE-MP | 10 ppm, | P, A3, |
| | PT DL 305/2007 | oito horas | 10 ppm, 50 mg/m3 | |

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

**PL**

| Składniki | Podstawa | Wartość | Parametry dotyczące kontroli | Uwaga |
|---|---|---|---|---|
| Naphthalene | PL NDS | NDS | 20 mg/m3 | |
| | PL NDS | NDSch | 50 mg/m3 | |

**NO**

| Komponenter | Grunnlag | Verdi | Kontrollparametrer | Nota |
|---|---|---|---|---|
| Naphthalene | FOR-2011-12-06-1358 | GV | 10 ppm, 50 mg/m3 | |

**NL**

| Bestanddelen | Basis | Waarde | Controleparameters | Opmerking |
|---|---|---|---|---|
| Naphthalene | NL WG | TGG-8 uur | 50 mg/m3 | |
| | NL WG | TGG-15 min | 80 mg/m3 | |

**MT**

| Components | Basis | Value | Control parameters | Note |
|---|---|---|---|---|
| Naphthalene | MT OEL | TWA | 10 ppm, 50 mg/m3 | |

**MK**

| Съставки | Основа | Стойност | Параметри на контрол | Бележка |
|---|---|---|---|---|
| Naphthalene | MK OEL | MV | 10 ppm, 50 mg/m3 | |

**LV**

| Sastāvdaļas | Bāze | Vērtība | Pārvaldības parametri | Piezīme |
|---|---|---|---|---|
| Naphthalene | LV OEL | AER 8 st | 10 ppm, 50 mg/m3 | |

**LU**

| Composants | Base | Valeur | Paramètres de contrôle | Note |
|---|---|---|---|---|
| Naphthalene | LU OEL | TWA | 10 ppm, 50 mg/m3 | |

**LT**

| Komponentai | Šaltinis | Vertė | Kontrolės parametrai | Pastaba |
|---|---|---|---|---|
| Diesel fuel, no. 2 | LT OEL | IPRD | 200 mg/m3 | |
| | LT OEL | TPRD | 300 mg/m3 | |
| Naphthalene | LT OEL | IPRD | 10 ppm, 50 mg/m3 | |

**IS**

| Komponenter | Grunnlag | Verdi | Kontrollparametrer | Nota |
|---|---|---|---|---|
| Naphthalene | IS OEL | TWA | 10 ppm, 50 mg/m3 | |

**IE**

| Components | Basis | Value | Control parameters | Note |
|---|---|---|---|---|
| Naphthalene | IE OEL | OELV - 8 hrs (TWA) | 10 ppm, 50 mg/m3 | |

**HU**

| Komponensek | Bázis | Érték | Ellenőrzési paraméterek | Megjegyzés |
|---|---|---|---|---|
| Naphthalene | HU OEL | AK-érték | 50 mg/m3 | N, EU91, i, |

EU91 91/322/EGK irányelvben közölt érték
i Ingerlő anyag (izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat)
N Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok. Korrekció NEM szükséges.

**HR**

| Sastojci | Temelj | Vrijednost | Nadzorni parametri | Bilješka |
|---|---|---|---|---|
| Diesel fuel, no. 2 | HR OEL | GVI | 100 ppm, 400 mg/m3 | |
| Naphthalene | HR OEL | GVI | 10 ppm, 50 mg/m3 | |
| | HR OEL | | 15 ppm, 75 mg/m3 | |

**GR**

| Συστατικά | Βάση | Τιμή | Παράμετροι ελέγχου | Σημείωση |
|---|---|---|---|---|
| Naphthalene | GR OEL | TWA | 10 ppm, 50 mg/m3 | |

**FR**

| Composants | Base | Valeur | Paramètres de contrôle | Note |
|---|---|---|---|---|
| Naphthalene | FR VLE | VME | 10 ppm, 50 mg/m3 | C2, Valeurs limites indicatives, |

C2 Cancérigène de catégorie 2 - Substances preoccupantes en raison d'effets cancerogenes possibles
Valeurs limites indicatives Valeurs limites indicatives

**FI**

| Aineosat | Peruste | Arvo | Valvontaa koskevat muuttujat | Huomautus |
|---|---|---|---|---|
| Naphthalene | FI OEL | HTP-arvot 8h | 1 ppm, 5 mg/m3 | |
| | FI OEL | HTP-arvot 15 min | 2 ppm, 10 mg/m3 | |

**ES**

| Componentes | Base | Valor | Parámetros de control | Nota |
|---|---|---|---|---|
| Naphthalene | ES VLA | VLA-ED | 10 ppm, 53 mg/m3 | vía dérmica, |
| | ES VLA | VLA-EC | 15 ppm, 80 mg/m3 | vía dérmica, |

vía dérmica Vía dérmica

**EE**

| Komponendid, osad | Alused | Väärtus | Kontrolliparameetrid | Märkused |
|---|---|---|---|---|
| Naphthalene | EE OEL | Piirnorm | 10 ppm, 50 mg/m3 | |

**DK**

| Komponenter | Basis | Værdi | Kontrolparametre | Note |
|---|---|---|---|---|
| Naphthalene | DK OEL | GV | 10 ppm, 50 mg/m3 | K, |

K Betyder, at stoffet er optaget på listen over stoffer, der anses for at være kræftfremkaldende.

**DE**

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|---|---|---|---|---|
| Naphthalene | DE TRGS 900 | AGW | 0,4 ppm, 2 mg/m3 | H, Y, Dampf und Aerosole, einatembare Fraktion |

H Hautresorptiv
Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

**CZ**

| Složky | Základ | Hodnota | Kontrolní parametry | Poznámka |
|---|---|---|---|---|
| Naphthalene | CZ OEL | PEL | 50 mg/m3 | |
| | CZ OEL | NPK-P | 100 mg/m3 | |

**CY**

| Συστατικά | Βάση | Τιμή | Παράμετροι ελέγχου | Σημείωση |
|---|---|---|---|---|
| Naphthalene | CY OEL | TWA | 10 ppm, 50 mg/m3 | |

**CH**

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|---|---|---|---|---|
| Naphthalene | CH SUVA | MAK-Wert | 10 ppm, 50 mg/m3 | H, Carc.Cat.3, NIOSH, OSHA, |

Carc.Cat.3 Krebserzeugende Stoffe Kategorie 3
H Vergiftung durch Hautresorption möglich; Bei Stoffen, welche die Haut leicht zu durchdringen vermögen, kann durch die zusätzliche Hautresorption die innere Belastung wesentlich höher werden als bei alleiniger Aufnahme durch die Atemwege.
NIOSH National Institute for Occupational Safety and Health
OSHA Occupational Safety and Health Administration

**BG**

| Съставки | Основа | Стойност | Параметри на контрол | Бележка |
|---|---|---|---|---|
| Naphthalene | BG OEL | TWA | 50 mg/m3 | |
| | BG OEL | STEL | 75 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 aërosol |
| Naphthalene | BE OEL | TGG 8 hr | 10 ppm, 53 mg/m3 | D, |
| | BE OEL | TGG 15 min | 15 ppm, 80 mg/m3 | D, |

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.

**AT**

| Inhaltsstoffe | Grundlage | Wert | Zu überwachende Parameter | Bemerkung |
|---|---|---|---|---|
| Naphthalene | AT OEL | MAK-TMW | 10 ppm, 50 mg/m3 | H, |

H Besondere Gefahr der Hautresorption

### Biological exposure indices

**SK**

| Názov látky | Č. CAS | Kontrolné parametre | Doba odberu vzorky | Aktualizácia |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Naphthalene | 91-20-3 | 1-hydroxypyrén: 5,66 µg/l V tejto prílohe sú uvedené aj niektoré chemické faktory s karcinogénnym účinkom (kategória 1A a kategória 1B). Pre tieto chemické faktory platí, že dodržanie BMH nevylučuje riziko škodlivých zdravotných účinkov, preto sú určené ako základ pre biomonitoring exponovaných osôb a zdravotný dohľad vykonávaný lekárom pracovnej zdravotnej služby podľa § 13 a prílohy č. 4 nariadenia vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov. (moč) Karcinogén kategórie 1B () | Koniec vystavenia alebo pracovnej zmeny | 2015-04-08 |
| | | 1-hydroxypyrén: 0.0259 nmol/l V tejto prílohe sú uvedené aj niektoré chemické faktory s karcinogénnym účinkom (kategória 1A a kategória 1B). Pre tieto chemické faktory platí, že dodržanie BMH nevylučuje riziko škodlivých zdravotných účinkov, preto sú určené ako základ pre biomonitoring exponovaných osôb a zdravotný dohľad vykonávaný lekárom pracovnej zdravotnej služby podľa § 13 a prílohy č. 4 nariadenia vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov. (moč) Karcinogén kategórie 1B () | Koniec vystavenia alebo pracovnej zmeny | 2015-04-08 |
| | | 1-hydroxypyrén: 3.77 µg/g kreatinínu V tejto prílohe sú uvedené aj niektoré chemické faktory s karcinogénnym účinkom (kategória 1A a kategória 1B). Pre tieto chemické faktory platí, že dodržanie BMH nevylučuje riziko škodlivých zdravotných účinkov, preto sú určené ako základ pre biomonitoring exponovaných osôb a zdravotný dohľad vykonávaný lekárom pracovnej zdravotnej služby podľa § 13 a prílohy č. 4 nariadenia vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov. (moč) Karcinogén kategórie 1B () | Koniec vystavenia alebo pracovnej zmeny | 2015-04-08 |

| | | | | |
|---|---|---|---|---|
| | | 1-hydroxypyrén: 1.95 µmol/mol kreatinínu V tejto prílohe sú uvedené aj niektoré chemické faktory s karcinogénnym účinkom (kategória 1A a kategória 1B). Pre tieto chemické faktory platí, že dodržanie BMH nevylučuje riziko škodlivých zdravotných účinkov, preto sú určené ako základ pre biomonitoring exponovaných osôb a zdravotný dohľad vykonávaný lekárom pracovnej zdravotnej služby podľa § 13 a prílohy č. 4 nariadenia vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov. (moč) Karcinogén kategórie 1B () | Koniec vystavenia alebo pracovnej zmeny | 2015-04-08 |

**GB**

| Substance name | CAS-No. | Control parameters | Sampling time | Update |
|---|---|---|---|---|
| Naphthalene | 91-20-3 | 1-hydroxypyrene: 4 µmol/mol creatinine (Urine) | After shift | 2011-12-18 |

**8.2**

**Exposure controls**
**Engineering measures**

Adequate ventilation to control airborned 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 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 |
| Color | : | Pale yellow to brown (if undyed), red to purple (dyed) |
| Odor | : | Mild |

**Safety data**

| | | |
|---|---|---|
| Flash point | : | 47°C (117°F)<br>minimum |
| Lower explosion limit | : | No data available |
| Upper explosion limit | : | No data available |
| Oxidizing properties | : | no |
| Autoignition temperature | : | No data available |
| Molecular formula | : | UVCB |
| Molecular weight | : | Not applicable |
| pH | : | Not applicable |
| Pour point | : | No data available |
| Melting point/freezing point | | No data available |
| Boiling point/boiling range | : | 191-343°C (376-649°F) |
| Vapor pressure | : | No data available |
| Relative density | : | 0,87<br>at 16 °C (61 °F) |
| Density | : | 0,75 - 0,90 g/cm3 |
| Water solubility | : | negligible |

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | No data available |
| Viscosity, kinematic | : | 2,55 cSt<br>at 40°C (104°F) |
| Relative vapor density | : | No data available |
| Evaporation rate | : | No data available |
| Percent volatile | : | > 99 %<br><br>100 % |

## 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: Hazardous polymerization does not occur.

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.

**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

**Diesel No. 2 Test Fuel**
**Skin irritation** : Skin irritation

**Diesel No. 2 Test Fuel**
**Eye irritation** : Vapors may cause irritation to the eyes, respiratory system and the skin.

**Diesel No. 2 Test Fuel**
**Sensitization** : No data available

**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
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<br>Result: positive<br><br>Test Type: Mouse lymphoma assay<br>Result: negative |
| Naphthalene | | Test Type: Ames test<br>Result: negative<br><br>Test Type: Sister Chromatid Exchange Assay<br>Result: negative<br><br>Test Type: Unscheduled DNA synthesis assay<br>Result: negative |

**Genotoxicity in vivo**

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | Test Type: Dominant lethal assay<br>Species: Mouse<br>Dose: 100 or 400 ppm<br>Result: negative |
| Naphthalene | | Test Type: Mouse micronucleus assay<br>Result: negative |

**Carcinogenicity**

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | Species: Mouse<br>Sex: male<br>Dose: 0, 25 ul<br>Exposure time: lifetime<br>Number of exposures: 3 times/wk<br>Remarks: Moderate dermal carcinogen |
| Naphthalene | | Species: Mouse<br>Sex: male<br>Dose: 10, 30 ppm<br>Exposure time: 105 weeks<br>Number of exposures: 6 hours/day, 5 days/week<br>Test substance: yes<br>Print Date: No information available.<br>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

**Diesel No. 2 Test Fuel**
**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
Assessment: May cause damage to organs through prolonged or repeated exposure.

**CMR effects**

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | Carcinogenicity: Limited evidence of carcinogenicity in animal studies<br>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 No. 2 Test Fuel**

| | | |
|---|---|---|
| **Further information** | : | Solvents may degrease the skin. |
| 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 12: Ecological information

**12.1**

**Toxicity**

**Toxicity to fish**

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | LL50: 21 mg/l<br>Exposure time: 96 h<br>Species: Oncorhynchus mykiss (rainbow trout)<br>semi-static test Method: OECD Test Guideline 203 |
| Naphthalene | | LC50: 3,2 mg/l<br>Exposure time: 96 h<br>Species: Pimephales promelas (fathead minnow) |

**Toxicity to daphnia and other aquatic invertebrates**

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | EC50: 2 mg/l<br>Exposure time: 48 h<br>Species: Daphnia magna (Water flea)<br>Method: OECD Test Guideline 202 |
| Naphthalene | | LC50: 2,16 mg/l<br>Exposure time: 48 h<br>Species: Daphnia magna (Water flea) |

**Toxicity to algae**

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

| | |
|---|---|
| Naphthalene | EC50: 2,96 mg/l<br>Exposure time: 48 h<br>Species: Selenastrum capricornutum (algae) |

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

Biodegradability

| | | |
|---|---|---|
| Diesel fuel, no. 2 | : | aerobic<br>Result: Not readily biodegradable.<br>57,5 %<br>Testing period: 28 d<br>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. |

**12.8**
**Additional Information**

**Ecotoxicology Assessment**

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

hazard

## 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, 3, III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN1202, DIESEL FUEL, 3, III, (47 °C c.c.), MARINE POLLUTANT, (DIESEL FUEL)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN1202, DIESEL FUEL, 3, III

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN1202, DIESEL FUEL, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (DIESEL FUEL)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

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 2 water endangering

**15.2**

**Chemical Safety Assessment**

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

**Major Accident Hazard Legislation** : 96/82/EC Update: 2003
Flammable.
6
Quantity 1: 5.000 t
Quantity 2: 50.000 t

: 96/82/EC Update: 2003
Dangerous for the environment
9b
Quantity 1: 200 t
Quantity 2: 500 t

: 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) heavy fuel oils (e) alternative fuels serving the same purposes

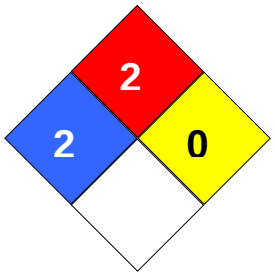
and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)
34
Quantity 1: 2.500 t
Quantity 2: 25.000 t

**Notification status**

| | | |
|---|---|---|
| Europe REACH | : | This product is in full compliance according to REACH regulation 1907/2006/EC. |
| 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 |
| Australia AIIC | : | On the inventory, or in compliance with the inventory |
| New Zealand NZIoC | : | This substance may be used as a single component chemical under an appropriate group standard |
| 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 |
| Taiwan TCSI | : | On the inventory, or in compliance with the inventory |
| China IECSC | : | On the inventory, or in compliance with the inventory |

## SECTION 16: Other information

**NFPA Classification** : Health Hazard: 2
Fire Hazard: 2
Reactivity Hazard: 0




**Further information**

Legacy SDS Number : CPC00523

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

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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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

**Annex**

1. Short title of Exposure Scenario: **Manufacture**

| | | |
|---|---|---|
| Main User Groups | : | **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sector of use | : | **SU3, SU8, SU9:** Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals |
| Process category | : | **PROC1:** Use in closed process, no likelihood of exposure<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises<br>**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities<br>**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities<br>**PROC15:** Use as laboratory reagent |
| Environmental release category | : | **ERC1:** Manufacture of substances |
| Further information | : | Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities |

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

**Product characteristics**

| | | |
|---|---|---|
| Remarks | | Substance is complex UVCB., Predominantly hydrophobic. |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day): (Msafe) | : | 3.300 |

**Environment factors not influenced by risk management**

| | | |
|---|---|---|
| Flow rate | : | 18.000 m3/d |
| Dilution Factor (River) | : | 10 |
| Dilution Factor (Coastal Areas) | : | 100 |

**Other given operational conditions affecting environmental exposure**

| | | |
|---|---|---|
| Continuous use/release | | |
| Number of emission days per year | : | 300 |
| Emission or Release Factor: Air | : | 1 % |
| Emission or Release Factor: Water | : | 0,003 % |
| Emission or Release Factor: Soil | : | 0,01 % |

**Technical conditions and measures / Organizational measures**

| | | |
|---|---|---|
| Air | : | Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 90 %) |
| Water | : | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 90,3 %) |
| Remarks | : | Common practices vary across sites thus conservative process release estimates used. |
| Water | : | If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %) |
| Remarks | : | Risk from environmental exposure is driven by freshwater sediment. |
| Remarks | : | Prevent discharge of undissolved substance to or recover from onsite wastewater. |
| Remarks | : | If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. |
| Remarks | : | Prevent discharge of undissolved substance to or recover from wastewater. |
| Remarks | : | Do not apply industrial sludge to natural soils. |
| Remarks | : | Sludge should be incinerated, contained or reclaimed. |

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

| | | |
|---|---|---|
| Type of Sewage Treatment Plant | : | Municipal sewage treatment plant |
| Flow rate of sewage treatment plant effluent | : | 10.000 m3/d |
| Effectiveness (of a measure) | : | 94,1 % |
| Percentage removed from waste water | : | 94,1 % |

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

| | | |
|---|---|---|
| Waste treatment | : | During manufacturing no waste of the substance is generated. |

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

| | | |
|---|---|---|
| Recovery Methods | : | During manufacturing no waste of the substance is generated. |

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

**Product characteristics**

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

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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

**Technical conditions and measures**

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

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

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they

occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

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

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

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

**Product characteristics**

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

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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

**Technical conditions and measures**

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

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

**Product characteristics**

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

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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

**Technical conditions and measures**

Handle substance within a closed system.

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

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 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 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 – | | 0,49 |

| | | | | | |
|---|---|---|---|---|---|
| | | | systemic Combined routes | | |
| 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
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) |
| Process category | : | **PROC1:** Use in closed process, no likelihood of exposure<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises<br>**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities<br>**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities<br>**PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>**PROC15:** Use as laboratory reagent |
| Environmental release category | : | **ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7:** Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive |

processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems

Further information :

Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities. Excludes emissions during transport.

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

**Product characteristics**

Remarks Substance is complex UVCB., Predominantly hydrophobic.

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day): (Msafe) : 2.900

**Environment factors not influenced by risk management**

Flow rate : 18.000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

**Other given operational conditions affecting environmental exposure**

Continuous use/release
Number of emission days per year : 300
Emission or Release Factor: Air : 0,1 %
Emission or Release Factor: Water : 0,0001 %
Emission or Release Factor: Soil : 0,001 %

**Technical conditions and measures / Organizational measures**

Air : Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 90 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks : Common practices vary across sites thus conservative process release estimates used.
Water : If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %)
Remarks : Prevent discharge of undissolved substance to or recover

from onsite wastewater.
Remarks : Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).
Remarks : No wastewater treatment required.
Remarks : Prevent discharge of undissolved substance to or recover from wastewater.
Remarks : Do not apply industrial sludge to natural soils.
Remarks : Sludge should be incinerated, contained or reclaimed.

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

**Conditions and measures related to external treatment of waste for disposal**
Waste treatment : External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

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

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

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

**Frequency and duration of use**
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)

**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 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.

**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 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 |
| 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 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<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises<br>**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities<br>**PROC8b:** Transfer of substance or preparation (charging/ |

| | | |
|---|---|---|
| | | discharging) from/ to vessels/ large containers at dedicated facilities<br>**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, 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 (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe) | : | 410.000 |

**Environment factors not influenced by risk management**

| | | |
|---|---|---|
| Flow rate | : | 18.000 m3/d |
| Dilution Factor (River) | : | 10 |
| Dilution Factor (Coastal Areas) | : | 100 |

**Other given operational conditions affecting environmental exposure**

| | | |
|---|---|---|
| Continuous use/release | | |
| Number of emission days per year | : | 300 |
| Emission or Release Factor: Air | : | 0,1 % |
| Emission or Release Factor: Water | : | 0,003 % |
| Emission or Release Factor: Soil | : | 0,1 % |

**Technical conditions and measures / Organizational measures**

| | | |
|---|---|---|
| Air | : | Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 80 %) |
| Water | : | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 51,6 %) |
| Remarks | : | Common practices vary across sites thus conservative process release estimates used. |
| Water | : | If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 0 %) |
| Remarks | : | Risk from environmental exposure is driven by freshwater sediment. |
| Remarks | : | Prevent discharge of undissolved substance to or recover from onsite wastewater. |
| Remarks | : | If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. |
| Remarks | : | Prevent discharge of undissolved substance to or recover from wastewater. |
| Remarks | : | Do not apply industrial sludge to natural soils. |
| Remarks | : | Sludge should be incinerated, contained or reclaimed. |

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

| | | |
|---|---|---|
| Type of Sewage Treatment Plant | : | Municipal sewage treatment plant |
| Flow rate of sewage treatment plant effluent | : | 2.000 m3/d |
| Effectiveness (of a measure) | : | 94,1 % |
| Percentage removed from waste water | : | 94,1 % |

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

| | | |
|---|---|---|
| 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.

**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)

**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.

## 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 |
| PROC8a, CS39 | ECETOC TRA Modified | | Worker – inhalation, long-term – systemic | 2 mg/m3 | 0,03 |
| | | | Worker – dermal, long- | 13,71 mg/kg/d | 0,47 |

| | | | | | |
|---|---|---|---|---|---|
| | | | term – systemic | | |
| | | | 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

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<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities<br>**PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities<br>**PROC16:** Using material as fuel sources, limited exposure to unburned product to be expected |
| Environmental release category | : | **ERC7:** Industrial use of substances in closed systems |
| Further information | : | Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste. |

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

**Product characteristics**

| | | |
|---|---|---|
| Remarks | | Substance is complex UVCB., Predominantly hydrophobic. |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (tonnes/day): (Msafe) | : | 5.000 |

**Environment factors not influenced by risk management**

| | | |
|---|---|---|
| Flow rate | : | 18.000 m3/d |
| Dilution Factor (River) | : | 10 |
| Dilution Factor (Coastal Areas) | : | 100 |

**Other given operational conditions affecting environmental exposure**

| | | |
|---|---|---|
| Continuous use/release | | |
| Number of emission days per year | : | 300 |
| Emission or Release Factor: Air | : | 0,5 % |
| Emission or Release Factor: Water | : | 0,001 % |
| Emission or Release Factor: Soil | : | 0 % |

**Technical conditions and measures / Organizational measures**

| | | |
|---|---|---|
| Air | : | Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 95 %) |
| Water | : | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 97,7 %) |
| Remarks | : | Common practices vary across sites thus conservative |

process release estimates used.

| | | |
|---|---|---|
| Water | : | If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): (Effectiveness: 60,4 %) |
| Remarks | : | Risk from environmental exposure is driven by freshwater sediment. |
| Remarks | : | If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. |
| Remarks | : | Prevent discharge of undissolved substance to or recover from wastewater. |
| Remarks | : | Do not apply industrial sludge to natural soils. |
| Remarks | : | Sludge should be incinerated, contained or reclaimed. |

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

| | | |
|---|---|---|
| Type of Sewage Treatment Plant | : | Municipal sewage treatment plant |
| Flow rate of sewage treatment plant effluent | : | 2.000 m3/d |
| Effectiveness (of a measure) | : | 94,1 % |
| Percentage removed from 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**

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

**Other operational conditions affecting workers exposure**

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

**Technical conditions and measures**

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

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

No other specific measures identified.

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

Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and transfer lines

prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimize exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions.

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

**Product characteristics**

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

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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

**Technical conditions and measures**

Store substance within a closed system.

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

**Product characteristics**

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

**Frequency and duration of use**

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

**Other operational conditions affecting workers exposure**

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

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

No other specific measures identified.

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

**Product characteristics**

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

**Frequency and duration of use**

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

**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 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 | | Air | | 0,29 mg/m3 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Method with Petrorisk | | | | | |
| | | | 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 – systemic Combined routes | | 0,49 |
| PROC2, 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 |
| 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, CS103 | 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 |
| PROC8b, CS8, CS14 | 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 |
| PROC16, CS107 | ECETOC TRA Modified | | Worker – inhalation, long-term – systemic | 1 mg/m3 | 0,03 |
| | | | Worker – dermal, long-term – systemic | 0,03 mg/kg/d | 0,01 |
| | | | Worker – long-term – | | 0,02 |

| | | | | | |
|---|---|---|---|---|---|
| | | | systemic Combined routes | | |

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)

## 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<br>**PROC2:** Use in closed, continuous process with occasional controlled exposure<br>**PROC3:** Use in closed batch process (synthesis or formulation)<br>**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<br>**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. |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):(Msafe) | : | 140.000 |

**Environment factors not influenced by risk management**

| | | |
|---|---|---|
| Flow rate | : | 18.000 m3/d |
| Dilution Factor (River) | : | 10 |
| Dilution Factor (Coastal Areas) | : | 100 |

**Other given operational conditions affecting environmental exposure**

| | | |
|---|---|---|
| Continuous use/release | | |
| Number of emission days per year | : | 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 ≥ (%): (Effectiveness: 0 %) |
| Water | : | If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): |

(Effectiveness: 0 %)
Remarks : Prevent discharge of undissolved substance to or recover from 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 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.

**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)

**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/m3 | |
| | | | 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/m3 | 0,01 |
| | | | Worker – dermal, long-term – systemic | 1,34 mg/kg/d | 0,46 |
| | | | 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 – | | 0,32 |

| | | | | | |
|---|---|---|---|---|---|
| | | | systemic Combined routes | | |

PROC1: Use in closed process, no likelihood of exposure
CS15: General exposures (closed systems)
PROC1: Use in closed process, no likelihood of exposure
CS67: Storage
PROC2: Use in closed, continuous process with occasional controlled exposure
CS15: General exposures (closed systems)
PROC3: Use in closed batch process (synthesis or formulation)
CS107: (closed systems)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS39: Equipment cleaning and maintenance
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
CS103: Vessel and container cleaning
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS14: Bulk transfers
CS507: Refueling
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
CS8: Drum/batch transfers
PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
CS107: (closed systems)

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

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