SAFETY DATA SHEET
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

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

1.1. Product identifier

Product name: Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel
Product number: ID 13865

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

Identified uses: Distribution of substance, (ES01a) Use as an intermediate, (ES01b) Use as a fuel, (ES12a, ES12b, ES12c)

1.3. Details of the supplier of the safety data sheet

Supplier: Neste Oyj
Keilaranta 21, Espoo, P.O.B. 95, FIN-00095 NESTE, FINLAND
Tel. +358 10 45811
SDS@neste.com (chemical safety)

1.4. Emergency telephone number

National emergency telephone: +358-9-471 977, +358-9-4711, Poison Information Centre number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards: Flam. Liq. 3 - H226
Health hazards: Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Carc. 2 - H351 STOT RE 2 - H373 Asp. Tox. 1 - H304
Environmental hazards: Aquatic Chronic 2 - H411

2.2. Label elements

Hazard pictograms

Signal word: Danger

Hazard statements: H226 Flammable liquid and vapour.
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.
H411 Toxic to aquatic life with long lasting effects.
## Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

### Precautionary statements
- **P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- **P273** Avoid release to the environment.
- **P301+P310** IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- **P302+P352** IF ON SKIN: Wash with plenty of water.
- **P331** Do NOT induce vomiting.
- **P261** Avoid breathing vapours.

### Contains
- Fuels, diesel, Renewable hydrocarbons (diesel type fraction), Distillates (Fischer-Tropsch), C8-26 - branched and linear, Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin

### 2.3. Other hazards
- **Evaporates slowly. Risk of soil and ground water contamination.**

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<table>
<thead>
<tr>
<th>Fuels, diesel</th>
<th>0 - 100 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 68334-30-5</td>
<td>EC number: 269-822-7</td>
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<table>
<thead>
<tr>
<th>Classification</th>
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<tr>
<td>Flam. Liq. 3 - H226</td>
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<tr>
<td>Acute Tox. 4 - H332</td>
</tr>
<tr>
<td>Skin Irrit. 2 - H315</td>
</tr>
<tr>
<td>Carc. 2 - H351</td>
</tr>
<tr>
<td>STOT RE 2 - H373</td>
</tr>
<tr>
<td>Asp. Tox. 1 - H304</td>
</tr>
<tr>
<td>Aquatic Chronic 2 - H411</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distillates (Fischer-Tropsch), C8-26 - branched and linear</th>
<th>0 - 100 %</th>
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</thead>
<tbody>
<tr>
<td>CAS number: 848301-67-7</td>
<td>EC number: 481-740-5</td>
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</table>

<table>
<thead>
<tr>
<th>Classification</th>
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</thead>
<tbody>
<tr>
<td>Asp. Tox. 1 - H304</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Renewable hydrocarbons (diesel type fraction)</th>
<th>0 - 80 %</th>
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<tbody>
<tr>
<td>CAS number: —</td>
<td>REACH registration number: 01-2119450077-42-XXXX</td>
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</table>

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asp. Tox. 1 - H304</td>
</tr>
</tbody>
</table>
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

<table>
<thead>
<tr>
<th>Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin</th>
<th>0 - 5 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: ---</td>
<td>REACH registration number: 01-2120091562-55-XXXX</td>
</tr>
</tbody>
</table>

**Classification**
- Flam. Liq. 3 - H226
- Acute Tox. 4 - H332
- Skin Irrit. 2 - H315
- Carc. 2 - H351
- STOT RE 2 - H373
- Asp. Tox. 1 - H304
- Aquatic Chronic 2 - H411

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**Composition comments**
Mixture of renewable raw material fuel, petroleum product and additives. Contains kerosine streams and straight-run and hydrocracked gas oil streams.

**Other information**
Renewable hydrocarbons (diesel type fraction); Identity outside the EU (CAS number and name of the substance); Alkanes, C10-C20 -branched and linear, CAS 928771-01-1.

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**Inhalation**
Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist.

**Ingestion**
Do not induce vomiting. Get medical attention immediately.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.

**Eye contact**
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists after washing.

**4.2. Most important symptoms and effects, both acute and delayed**

**General information**
Irritating to skin. May irritate eyes. Harmful by inhalation. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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

**Notes for the doctor**
Treat symptomatically.

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**
Water spray, foam, dry powder or carbon dioxide.

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

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

**Specific hazards**
Flammable liquid and vapour. Containers can burst violently or explode when heated, due to excessive pressure build-up.

**Hazardous combustion products**
Carbon dioxide (CO2). Carbon monoxide (CO).
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

5.3. Advice for firefighters

Protective actions during firefighting

Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions

Avoid inhalation of vapours and contact with skin and eyes. Wear adequate protective equipment at all operations.

For emergency responders

Prevent unauthorized access. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharge.

6.2. Environmental precautions

Environmental precautions

Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air). Risk of soil and ground water contamination.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up

Immediately start clean-up of the liquid and contaminated soil. Small Spillages: Absorb spillage with sand or other inert absorbent. Pay attention to the fire and health hazards caused by the product.

6.4. Reference to other sections

Reference to other sections

For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions

The product contains volatile substances which may spread in the atmosphere. Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. All handling should only take place in well-ventilated areas. Avoid inhalation of vapours and contact with skin and eyes. Use personal protective equipment and/or local ventilation when needed. Do not eat, drink or smoke when using this product. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Flammable liquid storage. Store in accordance with local regulations. Store in a demarcated bunded area to prevent release to drains and/or watercourses. Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfaced the loading and unloading stations. Only store in correctly labelled containers. Use containers made of the following materials: Carbon steel. Stainless steel.

7.3. Specific end use(s)

Specific end use(s)

Not known.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

**Ingredient comments**
The individual limit values can be applied for the hydrocarbons. Diesel fuel as total hydrocarbons; ACGIH TLV®-TWA (8h) 100 mg/m³ (IFV).

**PNEC**
Not available.

### Fuels, diesel (CAS: 68334-30-5)

**DNEL**
- **Workers - Inhalation; Short term systemic effects:** 4300 mg/m³, (15 min), Aerosol
- **Workers - Inhalation; Long term systemic effects:** 68 mg/m³, (8h), Aerosol
- **Workers - Dermal; Long term systemic effects:** 2.9 mg/kg/day, (8h)
- **Consumer - Inhalation; Short term systemic effects:** 2600 mg/m³, (15 min), Aerosol
- **Consumer - Inhalation; Long term systemic effects:** 20 mg/m³, (24h), Aerosol
- **Consumer - Dermal; Long term systemic effects:** 1.3 mg/kg/day, (24h)

### Renewable hydrocarbons (diesel type fraction)

**DNEL**
- **Workers - Inhalation; Long term systemic effects:** 147 mg/m³
- **Workers - Dermal; Long term systemic effects:** 42 mg/kg/day
- **Consumer - Inhalation; Long term systemic effects:** 94 mg/m³
- **Consumer - Dermal; Long term systemic effects:** 18 mg/kg/day

### 8.2. Exposure controls

**Appropriate engineering controls**
All handling should only take place in well-ventilated areas. Use personal protective equipment and/or local ventilation when needed. Handle in accordance with good industrial hygiene and safety practice. During tank operations follow special instructions (risk of oxygen displacement and hydrocarbons).

**Eye/face protection**
Tight-fitting safety glasses. Face shield when needed.

**Hand protection**
Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Neoprene. Polyvinyl chloride (PVC). The selected gloves should have a breakthrough time of at least 8 hours. Protection class 6. Protective gloves according to standards EN 420 and EN 374. Change protective gloves regularly.

**Other skin and body protection**
Wear suitable protective clothing as protection against splashing or contamination. Wear anti-static protective clothing if there is a risk of ignition from static electricity.

**Respiratory protection**
Filter device/half mask Combination filter, type A2/P3. Filter device could be used maximum 2 hours at a time. Filter devices must not be used in conditions where the oxygen level is low (< 19 vol.-%). At high concentrations a breathing apparatus must be used (self-contained or fresh air hose breathing apparatus). Filter must be changed often enough. Respirator according to standard EN 140.

**Environmental exposure controls**
Take precautions against leakage by constructing collecting pools and sewerage systems as well as by surfacing the loading and unloading stations.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Clear. Yellowish.</td>
</tr>
<tr>
<td>Odour</td>
<td>Hydrocarbons. Mild.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>-</td>
</tr>
<tr>
<td>pH</td>
<td>-</td>
</tr>
<tr>
<td>Melting point</td>
<td>Cloud point ≤ 0°C</td>
</tr>
</tbody>
</table>
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

Initial boiling point and range 150...370°C (EN ISO 3405)

Flash point ≥ 55°C (EN ISO 2719)

Upper/lower flammability or explosive limits
Upper flammable/explosive limit: 1 % Estimated value. Lower flammable/explosive limit: 6 % Estimated value.

Vapour pressure < 1 kPa @ 40°C

Vapour density -

Relative density ~ 0.8...0.85 @ 15/4°C (EN ISO 12185)

Solubility(ies) The product has poor water-solubility. < 50 mg/l @ 20°C

Partition coefficient log Kow: > 3

Auto-ignition temperature ~ 220°C Estimated value.

Decomposition Temperature -

Viscosity Kinematic viscosity ≤ 4.5 mm²/s @ 40°C (EN ISO 3104).

Explosive properties Not considered to be explosive.

Oxidising properties Does not meet the criteria for classification as oxidising.

9.2. Other information
Other information Not known.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions No potentially hazardous reactions known.

10.4. Conditions to avoid
Conditions to avoid Keep away from heat, sparks and open flame.

10.5. Incompatible materials
Materials to avoid Oxidising agents.

10.6. Hazardous decomposition products
Hazardous decomposition products Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicological effects Harmful if inhaled.

Acute toxicity - inhalation ATE inhalation (vapours mg/l) 15.71

Skin corrosion/irritation
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

Skin corrosion/irritation
Fuels, diesel: Irritating to skin. (OECD 404) Renewable hydrocarbons (diesel type fraction): Not classified. (EC B4) The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory irritation.

Serious eye damage/irritation
Serious eye damage/irritation
Based on available data the classification criteria are not met. (OECD 405, EC B5)

Skin sensitisation
Skin sensitisation
Based on available data the classification criteria are not met. (OECD 406, EC B6)

Germ cell mutagenicity
Genotoxicity - in vitro
Based on available data the classification criteria are not met. (OECD 471, EC B10, B13/14, B17)

Genotoxicity - in vivo
Based on available data the classification criteria are not met. Fuels, diesel: (OECD 475)

Carcinogenicity
Carcinogenicity
Suspected of causing cancer. Fuels, diesel: Product may contain cracked gas oil streams. Contains a substance/a group of substances which may cause cancer.

Reproductive toxicity
Reproductive toxicity - fertility
Based on available data the classification criteria are not met. Renewable hydrocarbons (diesel type fraction): (OECD 416)

Reproductive toxicity - development
Based on available data the classification criteria are not met. Fuels, diesel: (OECD 414)

Specific target organ toxicity - single exposure
STOT - single exposure
Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure
STOT - repeated exposure
Fuels, diesel: May cause damage to organs through prolonged or repeated exposure. (OECD 410, 411, 413) Renewable hydrocarbons (diesel type fraction): Not classified. (OECD 408)

Aspiration hazard
Aspiration hazard
May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

Toxicological information on ingredients.

**Fuels, diesel**

**Acute toxicity - oral**
Notes (oral LD₅₀)
LD₅₀ > 5000 mg/kg, Oral, Rat (OECD 401, 420)

**Acute toxicity - dermal**
Notes (dermal LD₅₀)
LD₅₀ > 4300 mg/kg, Dermal, Rabbit (OECD 434)

**Acute toxicity - inhalation**
Notes (inhalation LC₅₀)
LC₅₀ 3,6 - 5,4 mg/l, Inhalation, (4h), Rat (OECD 403)

ATE inhalation (vapours mg/l)
11.0

**Renewable hydrocarbons (diesel type fraction)**

**Acute toxicity - oral**
Notes (oral LD₅₀)
LD₅₀ >2000 mg/kg, Oral, Rat (EC B1 tris)
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

### Acute toxicity - dermal

| Notes (dermal LD₅₀) | LD₅₀ > 2000 mg/kg, Dermal, Rat (EC B3) |

### SECTION 12: Ecological Information

#### 12.1. Toxicity

**Toxicity**

Toxic to aquatic life with long lasting effects.

**Ecological information on ingredients.**

<table>
<thead>
<tr>
<th>Fuels, diesel</th>
</tr>
</thead>
</table>

#### Acute aquatic toxicity

**Acute toxicity - fish**

- **LL₅₀, 96 hours:** 21 mg/l, Oncorhynchus mykiss (Rainbow trout)
- **NOEL, 96 hours:** 10 mg/l, Oncorhynchus mykiss (Rainbow trout)

**WAF (OECD 203, EC C.1)**

**Acute toxicity - aquatic invertebrates**

- **EL₅₀, 48 hours:** 68 mg/l, Daphnia magna
- **NOEL, 48 hours:** 46 mg/l, Daphnia magna

**WAF (OECD 202, EC C.2)**

**Acute toxicity - aquatic plants**

- **EL₅₀, 72 hours:** 10 mg/l, Pseudokirchneriella subcapitata
- **NOEL, 72 hours:** 1 mg/l, Pseudokirchneriella subcapitata

**WAF (OECD 201, EC C.3)**

**Acute toxicity - microorganisms**

- **EL₅₀, 40 hours:** > 1000 mg/l, Micro-organisms (wastewater sludge)
- **NOEL, 40 hours:** 3.22 mg/l, Micro-organisms (wastewater sludge)

**WAF (OECD 209)**

**Chronic aquatic toxicity**

**Chronic toxicity - fish early life stage**

- **NOEL, 14 days:** 0.08 mg/l, Oncorhynchus mykiss (Rainbow trout)

**QSAR**

**Chronic toxicity - aquatic invertebrates**

- **NOEL, 21 days:** 0.2 mg/l, Daphnia magna

**QSAR**

**Renewable hydrocarbons (diesel type fraction)**

**Acute aquatic toxicity**

| Acute toxicity - fish | LL₅₀, 96 hours: > 1000 mg/l, WAF (OECD 203) |
| Acute toxicity - aquatic invertebrates | EL₅₀, 48 hours: > 100 mg/l, WAF (OECD 202) |
| Acute toxicity - aquatic plants | EL₅₀, 72 hours: > 100 mg/l, Algae WAF (OECD 201) |
| Acute toxicity - microorganisms | EC₅₀, 30-180 minutes: > 1000 mg/l, Micro-organisms (wastewater sludge) (OECD 209) |

**Chronic aquatic toxicity**
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

12.2. Persistence and degradability

Persistence and degradability  The product contains volatile substances which may spread in the atmosphere. Can be photodegraded in the atmosphere.

Stability (hydrolysis)  No significant reaction in water.

Ecological information on ingredients.

Fuels, diesel

Biodegradation  Inherently biodegradable.

(OECD 301F)

Renewable hydrocarbons (diesel type fraction)

Biodegradation  Rapidly degradable

(OECD 301B)

12.3. Bioaccumulative potential

Bioaccumulative potential  Possibly bioaccumulative.

Partition coefficient  log Kow: > 3

12.4. Mobility in soil

Mobility  Evaporates slowly. The product has poor water-solubility. Product can penetrate soil until reaching the surface of ground water. The product contains substances which are bound to particulate matter and are retained in soil.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment  This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects  Product causes fouling, and direct contact produces harmful effects e.g. to birds and vegetation. Adsorbed hydrocarbon residues can be harmful to sediment organisms.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods  Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out.

SECTION 14: Transport information
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

Sea transport notes
This cargo is considered an Energy-rich fuel and effective 1 January 2019 should be carried subject to Annex I of MARPOL, see Annex 12 of MEPC.2/Circ.24. Please also refer to MEPC.1/Circ.879 - GUIDELINES FOR THE CARRIAGE OF ENERGY-RICH FUELS AND THEIR BLENDS

14.1. UN number
UN No. (ADR/RID) 1202

14.2. UN proper shipping name
Proper shipping name (ADR/RID) UN 1202 DIESEL FUEL

14.3. Transport hazard class(es)
ADR/RID class 3

14.4. Packing group
ADR/RID packing group III

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant MARINE POLLUTANT

14.6. Special precautions for user
Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU legislation

15.2. Chemical safety assessment
A chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet
ACGIH = American Conference of Governmental Industrial Hygienists
TLV = Threshold Limit Value
TWA = Time-Weighted Average
DNEL = Derived No-Effect Level
PNEC = Predicted No-Effect Concentration
WAF = Water Accommodated Fraction
Diesel fuel, sulphur free; Neste Pro Diesel; Neste Futura Diesel

**Key literature references and sources for data**

**Training advice**
DO NOT SIPHON PRODUCT BY MOUTH SUCTION.

**Revision comments**
Updated, sections: 14 NOTE: Lines within the margin indicate significant changes from the previous revision.

**Revision date**
01/01/2019

**Supersedes date**
30/07/2018

**SDS number**
5634

**Hazard statements in full**
H226 Flammable liquid and vapour.
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.
H411 Toxic to aquatic life with long lasting effects.
Exposure scenario
Use of Substance as Intermediate

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuels, diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>68334-30-5</td>
</tr>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES01b</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

Main title
Use of Substance as Intermediate

Process scope
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).

Sector of use
SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals

Environment

Environmental release category
ERC6a Use of intermediate

SPERC
ESVOC SPERC 6.1a.v1

Worker

Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 1 000 000 tonnes/year
Fraction of Regional tonnage used locally: 0.015
Annual site tonnage: 15 000 tonnes
Maximum daily site tonnage: 50 tonne/day

Frequency and duration of use
Continuous release.
Emission days: 300 days/year
Use of Substance as Intermediate

Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Emission factor - air</th>
<th>Release fraction to air from process (initial release prior to RMM): 0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 2.4E-04</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 0.001</td>
</tr>
</tbody>
</table>

Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th>Dilution</th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>

Risk management measures

Good practice

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

Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite waste water. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 94.9%

Removal efficiency (total): 94.9%

Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 5.5E+04 kg/day

Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air

Treat air emission to provide a typical removal efficiency of 80%.

Water

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 94.4 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): ≥ 0. Prevent discharge of undissolved substance to or recover from onsite waste water.

Soil

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

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 method

This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state

Liquid With potential for aerosol generation

Vapour pressure

Vapour pressure < 0.5 kPa at STP.

Concentration details

Covers percentage substance in the product up to 100% (unless stated differently).

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting

Assumes a good basic standard of occupational hygiene is implemented.

Temperature

Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Use of Substance as Intermediate

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear 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 the nature of exposure and of basic actions to minimise 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; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) 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.

Risk management measures

General exposures (closed systems)
Handle substance within a closed system.

General exposures (open systems)
Wear suitable gloves tested to EN374.

Process sampling
No other specific measures identified.

Bulk closed loading and unloading
Handle substance within a closed system. Wear suitable gloves tested to EN374.

Bulk open loading and unloading
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance. Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Laboratory activities
No other specific measures identified.

Bulk product storage
Handle substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.0086  Risk-driving RCR - water compartment driven RCR(water) ≤ 0.91

4. Guidance to check compliance with the exposure scenario (Environment 1)
Use of Substance as Intermediate

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 onsite 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).

3. Exposure estimation (Health 1)

Assessment method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Distribution of Substance

Identification

Product name  Fuels, diesel
CAS number  68334-30-5
Version number  2018
Es reference  ES01a

1. Title of exposure scenario

Main title  Distribution of Substance
Process scope  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 distribution and associated laboratory activities.

Environment

Environmental release category

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5 Use at industrial site leading to inclusion into/onto article
ERC6a Use of intermediate
ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7 Use of functional fluid at industrial site

SERC

ESVOC SPERC 1.1.b.v1

Worker

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (industrial - Environment 1)

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
Distribution of Substance

Fraction of EU tonnage used in region: 0.1  
Regional use tonnage: 31 000 000 tonnes/year  
Fraction of Regional tonnage used locally: 0.002  
Annual site tonnage: 61 000 tonnes  
Maximum daily site tonnage: 200 tonne/day

Frequency and duration of use

Continuous release.  
Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air  
Release fraction to air from process (initial release prior to RMM): 0.001

Emission factor - water  
Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Emission factor - soil  
Release fraction to soil from process (initial release prior to RMM): 0.00001

Environmental factors not influenced by risk management measures

Dilution  
Local freshwater dilution factor: 10  
Local marine water dilution factor: 100

Risk management measures

Good practice  
Common practices vary across sites, thus conservative process release estimates used.  
Risk from environmental exposure is driven by freshwater sediment.

STP details  
Estimated substance removal from wastewater via domestic sewage treatment: 94.9%  
Removal efficiency (total): 94.9%  
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1000 tonne/day  
2000.  
Assumed domestic sewage treatment plant flow (m³/day):

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air  
Treat air emission to provide a typical removal efficiency of 90%.

Water  
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): 74.3. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Soil  
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

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 method  
External recovery and recycling of waste should comply with applicable local and/or national regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state  
Liquid With potential for aerosol generation

Vapour pressure  
Vapour pressure < 0.5 kPa at STP.

Concentration details  
 Covers percentage substance in the product up to 100% (unless stated differently).
Distribution of Substance

**Frequency and duration of use**

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

**Other given operational conditions affecting workers’ exposure**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Assumes a good basic standard of occupational hygiene is implemented.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assumes use at not more than 20°C above ambient temperature, unless stated differently.</td>
</tr>
</tbody>
</table>

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

| Organisational measures | General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear 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 the nature of exposure and aware of basic actions to minimise 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; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) 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. |

**Risk management measures**

<table>
<thead>
<tr>
<th>General exposures (closed systems)</th>
<th>Handle substance within a closed system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General exposures (open systems)</td>
<td>Wear suitable gloves tested to EN374.</td>
</tr>
<tr>
<td>Process sampling</td>
<td>No other specific measures identified.</td>
</tr>
<tr>
<td>Laboratory activities</td>
<td>No other specific measures identified.</td>
</tr>
<tr>
<td>Bulk closed loading and unloading</td>
<td>Handle substance within a closed system. Wear suitable gloves tested to EN374.</td>
</tr>
<tr>
<td>Bulk open loading and unloading</td>
<td>Wear suitable gloves tested to EN374.</td>
</tr>
<tr>
<td>Drum and small package filling</td>
<td>Wear suitable gloves tested to EN374.</td>
</tr>
<tr>
<td>Equipment cleaning and maintenance</td>
<td>Drain down and flush system prior to equipment break-in or maintenance. Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.</td>
</tr>
<tr>
<td>Storage</td>
<td>Handle substance within a closed system.</td>
</tr>
</tbody>
</table>
3. Exposure estimation (Environment 1)

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.024 Risk-driving RCR - water compartment driven RCR(water) ≤ 0.20

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

3. Exposure estimation (Health 1)

**Assessment method**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

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. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Use as a Fuel - Industrial

**Identification**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuels, diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>68334-30-5</td>
</tr>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES12a</td>
</tr>
</tbody>
</table>

1. **Title of exposure scenario**

- **Main title**: Use as a Fuel - Industrial
- **Process scope**: Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

**Environment**

- **Environmental release category**: ERC7 Use of functional fluid at industrial site
- **SPERC**: ESVOC SPERC 7.12a.v1

**Worker**

- **Process category**: PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
- PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
- PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions
- PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
- PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- PROC16 Use of fuels

2. **Conditions of use affecting exposure (Industrial - Environment 1)**

**Product characteristics**

- Substance is complex UVCB. Predominantly hydrophobic.

**Amounts used**

- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 3,700,000 tonnes/year
- Fraction of Regional tonnage used locally: 0.4
- Annual site tonnage: 1,500,000 tonnes
- Maximum daily site tonnage: 5,000 tonne/day

**Frequency and duration of use**

- Continuous release.
- Emission days: 300 days/year

**Other given operational conditions affecting environmental exposure**

- **Emission factor - air**: Release fraction to air from process (initial release prior to RMM): 0.005
- **Emission factor - water**: Release fraction to wastewater from process (initial release prior to RMM): 2.4E-06
Use as a Fuel - Industrial

Emission factor - soil  
Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution  
Local freshwater dilution factor: 10  
Local marine water dilution factor: 100

Risk management measures

Good practice  
Common practices vary across sites, thus conservative process release estimates used.  
Risk from environmental exposure is driven by freshwater sediment.

STP details  
Estimated substance removal from wastewater via domestic sewage treatment: 94.9%  
Removal efficiency (total): 98.7%  
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 5 000 tonne/day  
Assumed domestic sewage treatment plant flow (m³/day): 2000.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air  
Treat air emission to provide a typical removal efficiency of 95%.

Water  
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 94.4. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%): ≥ 0.

Soil  
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to external treatment of waste for disposal

Waste treatment  
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. 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 method  
This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state  
Liquid With potential for aerosol generation

Vapour pressure  
Vapour pressure < 0.5 kPa at STP.

Concentration details  
Covers percentage substance in the product up to 100% (unless stated differently).

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

Other given operational conditions affecting workers exposure

Setting  
Assumes a good basic standard of occupational hygiene is implemented.

Temperature  
Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Organisational measures to prevent/limit releases, dispersion and exposure
Use as a Fuel - Industrial

**Organisational measures**

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear 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 the nature of exposure and aware of basic actions to minimise 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; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) 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.

**Risk management measures**

- Bulk transfers
  Wear suitable gloves tested to EN374.
- Drum/batch transfers
  Wear suitable gloves tested to EN374.
- Use as a fuel (closed systems)
  No other specific measures identified.
- Equipment cleaning and maintenance
  Drain down and flush system prior to equipment break-in or maintenance. Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
- Storage
  Handle substance within a closed system.

---

### 3. Exposure estimation (Environment 1)

**Assessment method**

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.028  Risk-driving RCR - water compartment driven RCR(water) ≤ 0.91

### 4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).

---

### 3. Exposure estimation (Health 1)

**Assessment method**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Use as a Fuel - Industrial

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. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
Exposure scenario
Use as a Fuel - Professional

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Fuels, diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number</td>
<td>68334-30-5</td>
</tr>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES12b</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

Main title
Use as a Fuel - Professional

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

Environment

Environmental release category
- ERC9a Widespread use of functional fluid (indoor)
- ERC9b Widespread use of functional fluid (outdoor)

SPERC
ESVOC SPERC 9.12b.v1

Worker

Process category
- PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
- PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
- PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
- PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
- PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- PROC16 Use of fuels

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics
Substance is complex UVCB. Predominantly hydrophobic.

Amounts used
- Fraction of EU tonnage used in region: 0.1
- Regional use tonnage: 6 900 000 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 3 400 tonnes
- Maximum daily site tonnage: 9.4 tonne/day

Frequency and duration of use
Continuous release.
Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air
Release fraction to air from wide dispersive use (regional only): 0.001

Emission factor - water
Release fraction to wastewater from wide dispersive use: 0.00001
Use as a Fuel - Professional

**Emission factor - soil**  
Release fraction to soil from wide dispersive use (regional only): 0.00001

**Environmental factors not influenced by risk management measures**

**Dilution**  
Local freshwater dilution factor: 10  
Local marine water dilution factor: 100

**Risk management measures**

**Good practice**  
Common practices vary across sites, thus conservative process release estimates used.  
Risk from environmental exposure is driven by fresh water.

**STP details**

Estimated substance removal from wastewater via domestic sewage treatment: 94.9%  
Removal efficiency (total): 94.9%  
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1.2E+05 kg/day  
Assumed domestic sewage treatment plant flow (m³/day): 2000.

**Technical onsite conditions and measures to reduce or limit discharges to air, water and soil**

**Air**  
Not determined.

**Water**  
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 34.3. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

**Soil**  
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

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

**Waste treatment**  
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. 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 method**  
This substance is consumed during use and no waste of the substance is generated.

### 2. Conditions of use affecting exposure (Workers - Health 1)

**Product characteristics**

**Physical state**  
Liquid With potential for aerosol generation

**Vapour pressure**  
Vapour pressure < 0.5 kPa at STP.

**Concentration details**  
Covers percentage substance in the product up to 100% (unless stated differently).

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

**Other given operational conditions affecting workers exposure**

**Setting**  
Assumes a good basic standard of occupational hygiene is implemented.

**Temperature**  
Assumes use at not more than 20°C above ambient temperature, unless stated differently.

**Organisational measures to prevent/limit releases, dispersion and exposure**
Use as a Fuel - Professional

Organisational measures

General measures applicable to all activities Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear 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 the nature of exposure and aware of basic actions to minimise 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; consider the need for health surveillance; identify and implement corrective actions. General measures (skin irritants) 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.

Risk management measures

Bulk transfers
Wear suitable gloves tested to EN374.

Drum/batch transfers
Use drum pumps or carefully pour from container.
Wear suitable gloves tested to EN374.

Refuelling
Wear suitable gloves tested to EN374.

Use as a fuel (closed systems)
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Ensure operation is undertaken outdoors.

Equipment cleaning and maintenance
Drain down and flush system prior to equipment break-in or maintenance.
Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Storage
Handle substance within a closed system.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.024  Risk-driving RCR - water compartment driven RCR(water) ≤ 0.075

4. Guidance to check compliance with the exposure scenario (Environment 1)

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 onsite 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).
3. Exposure estimation (Health 1)

**Assessment method**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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. Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

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.
# Exposure scenario

**Use as a Fuel - Consumer**

<table>
<thead>
<tr>
<th>Identification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>Fuels, diesel</td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
<td>68334-30-5</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2018</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES12c</td>
</tr>
</tbody>
</table>

## 1. Title of exposure scenario

<table>
<thead>
<tr>
<th><strong>Main title</strong></th>
<th>Use as a Fuel - Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process scope</strong></td>
<td>Covers consumer uses in liquid fuels.</td>
</tr>
<tr>
<td><strong>Product category</strong></td>
<td>PC13 Fuels.</td>
</tr>
</tbody>
</table>

## Environment

<table>
<thead>
<tr>
<th><strong>Environmental release category</strong></th>
<th>ERC9a Widespread use of functional fluid (indoor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC9b Widespread use of functional fluid (outdoor)</td>
</tr>
<tr>
<td><strong>SPERC</strong></td>
<td>ESVOC SPERC 9.12c.v1</td>
</tr>
</tbody>
</table>

## 2. Conditions of use affecting exposure (Non-industrial - Environment 1)

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
<th>Substance is complex UVCB. Predominantly hydrophobic.</th>
</tr>
</thead>
</table>

### Amounts used

| **Fraction of EU tonnage used in region**: 0.1 |
| **Regional use tonnage**: 19 000 000 tonnes/year |
| **Fraction of Regional tonnage used locally**: 0.0005 |
| **Annual site tonnage**: 9 500 tonnes |
| **Maximum daily site tonnage**: 26 tonne/day |

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
<th>Continuous release.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emission days</strong>: 365 days/year</td>
<td></td>
</tr>
</tbody>
</table>

### Other given operational conditions affecting environmental exposure

<table>
<thead>
<tr>
<th><strong>Emission factor - air</strong></th>
<th>Release fraction to air from wide dispersive use (regional only): 0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emission factor - water</strong></td>
<td>Release fraction to wastewater from wide dispersive use: 0.00001</td>
</tr>
<tr>
<td><strong>Emission factor - soil</strong></td>
<td>Release fraction to soil from wide dispersive use (regional only): 0.00001</td>
</tr>
</tbody>
</table>

### Environmental factors not influenced by risk management measures

<table>
<thead>
<tr>
<th><strong>Dilution</strong></th>
<th>Local freshwater dilution factor: 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local marine water dilution factor: 100</td>
</tr>
</tbody>
</table>
Use as a Fuel - Consumer

Risk management measures

### STP details
- Estimated substance removal from wastewater via domestic sewage treatment: 94.9%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: $3.0 \times 10^5$ kg/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

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

#### Waste treatment
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. 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 method
This substance is consumed during use and no waste of the substance is generated.

2. Conditions of use affecting exposure (Non-Industrial - Health 1)

#### Control of Non-industrial exposure
PC13_1 Liquid: automotive refuelling

#### Product characteristics

##### Physical state
Liquid

##### Vapour pressure
Liquid, vapour pressure > 10 Pa (STP)

##### Concentration details
Covers percentage substance in the product up to 100% (unless stated differently).

##### Amounts used
For each use event, covers use amounts up to 37.5 kg.

##### Frequency and duration of use
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.05 hours per event.

##### Human factors not influenced by risk management

#### Potentially exposed body parts
Covers skin contact area up to 210.00 cm².

#### Other given operational conditions affecting Non-industrial exposure

##### Room size
Covers outdoor use. Covers use in room size of 100 m³.

#### Other given operational conditions affecting Non-industrial exposure
No specific risk management measure identified beyond those operational conditions stated.

2. Conditions of use affecting exposure (Non-Industrial - Health 2)

#### Control of Non-industrial exposure
PC13_3 Liquid: garden equipment - use

#### Product characteristics

##### Physical state
Liquid

##### Vapour pressure
Vapour pressure > 10 kPa at STP.

##### Concentration details
Covers percentage substance in the product up to 100% (unless stated differently).
Use as a Fuel - Consumer

Amounts used

For each use event, covers use amounts up to 750 g.

Frequency and duration of use

Covers use up to 26 day(s)/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 2 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts
Covers skin contact area up to 420 cm².

Other given operational conditions affecting Non-industrial exposure

Room size
Covers outdoor use. Covers use in room size of 100 m³.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

2. Conditions of use affecting exposure (Non-Industrial - Health 3)

Control of Non-industrial exposure

PC13_4 Liquid: Garden equipment - Refuelling

Product characteristics

Physical state
Liquid

Vapour pressure
Vapour pressure > 10 kPa at STP.

Concentration details
Covers percentage substance in the product up to 100% (unless stated differently).

Amounts used

For each use event, covers use amounts up to 750 g.

Frequency and duration of use

Covers use up to 26 day(s)/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.03 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts
Covers skin contact area up to 420 cm².

Other given operational conditions affecting Non-industrial exposure

Room size
Covers use in room size of 34 m³. Covers use in a one car garage (34 m³) under typical ventilation.

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

2. Conditions of use affecting exposure (Non-Industrial - Health 4)

Control of Non-industrial exposure

PC13_6 Liquid: home space heater fuel

Product characteristics

Physical state
Liquid
### Use as a Fuel - Consumer

**Vapour pressure**
Vapour pressure > 10 kPa at STP.

**Concentration details**
Covers percentage substance in the product up to 100% (unless stated differently).

**Amounts used**
For each use event, covers use amounts up to 1.5 kg.

**Frequency and duration of use**
- Covers use up to 120 day(s)/year.
- Covers use up to 1 time(s)/day.
- Covers exposure up to 0.03 hours

### Human factors not influenced by risk management

**Potentially exposed body parts**
Covers skin contact area up to 210 cm².

**Other given operational conditions affecting Non-industrial exposure**

**Room size**
Covers use in room size of 20 m³. Covers use under typical household ventilation.

**Other given operational conditions affecting Non-industrial exposure**
No specific risk management measure identified beyond those operational conditions stated.

### 3. Exposure estimation (Environment 1)

**Assessment method**
Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.024  Risk-driving RCR - water compartment driven RCR(water) ≤ 0.085

### 4. Guidance to check compliance with the exposure scenario (Environment 1)

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.

### 3. Exposure estimation (Health 1)

**Assessment method**
The ECETOC TRA tool has been used to estimate consumer exposures, unless otherwise indicated. (ECETOC Report 107; Chapter R15 of IR&CSA TGD)

### 4. Guidance to check compliance with the exposure scenario (Health 1)

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.