SAFETY DATA SHEET
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

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

1.1. Product identifier

Product name: Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

Product number: ID 13779

Internal identification: 160041, 160051, 160055, 160061, 160071, 160350, 160360, 160370, 160205, 160216; 160364; 160670; 160376, 160377, 160361, 160207, 160215

Synonyms; trade names: Previous product name: Diesel for non-road use; Neste light fuel oil for heating and non-road use; MGODMA; DMA Barge

UFI: UFI: 7QWY-XPC3-6812-AW54

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

Identified uses: 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

Emergency telephone: +61 2 9186 1132, Chemwatch: International Emergency Response Phone Number

National emergency telephone: +358 800 147 111, +358 9 471 977, Poison Information Centre number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification EC 1272/2008 (SI 2019 No. 720)

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:

- Fire
- Exclamation mark
- Poison symbol
- Aquatic hazard symbol

Signal word: Danger
Hazard statements

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

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), 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. This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

<table>
<thead>
<tr>
<th><strong>Fuels, diesel</strong></th>
<th>≥ 60 %</th>
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</thead>
<tbody>
<tr>
<td>CAS number: 68334-30-5</td>
<td>EC number: 269-822-7</td>
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</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

<table>
<thead>
<tr>
<th><strong>Renewable hydrocarbons (diesel type fraction)</strong></th>
<th>≤ 50 %</th>
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</thead>
<tbody>
<tr>
<td>CAS number: —</td>
<td></td>
</tr>
</tbody>
</table>

Classification

Asp. Tox. 1 - H304
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

<table>
<thead>
<tr>
<th>Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin</th>
<th>0 - 10 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: —</td>
<td></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, C10-20-branched and linear, CAS 928771-01-1.; REACH registration number:, Fuels, diesel: REACH 01-2119484664-27-XXXX, Renewable hydrocarbons (diesel type fraction): REACH 01-2119450077-42-XXXX, Petroleum diesel/gas oil fraction, co-processed with renewable hydrocarbons of plant or animal origin: REACH 01-2120091562-55-XXXX

**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. Aspiration hazard if swallowed. 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**
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

**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).

### 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. Use only outdoors or in a well-ventilated area. 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. Only store in correctly labelled containers. Use containers made of the following materials: Mild steel. Stainless steel.

#### 7.3. Specific end use(s)

**Specific end use(s)**
Not known.
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

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
Provide adequate ventilation. 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
Spectacles.

Hand protection
Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. Polyvinyl chloride (PVC). The breakthrough time for any glove material may be different for different glove manufacturers. Protective gloves according to standard EN 374. Change protective gloves regularly.

Other skin and body protection
Wear anti-static protective clothing if there is a risk of ignition from static electricity.

Respiratory protection
Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P3. Filter must be changed often enough. Gas and combination filter cartridges suitable for intended use should be used.

Environmental exposure controls
Store in a demarcated bunded area to prevent release to drains and/or watercourses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Liquid.
Colour Red.
Odour Hydrocarbons. Mild.
Odour threshold -
PH -
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

Melting point
Cloud point ≤ 0°C

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

Flash point
> 55°C (EN ISO 2719)

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

Vapour pressure
< 1 kPa @ 40°C

Vapour density
-

Relative density
0.80...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
~ 240°C Estimated value.

Decomposition Temperature
-

Viscosity
Kinematic viscosity ≤ 4.5 mm²/s @ 40°C

Explosive properties
Not considered to be explosive.

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

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
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

ATE inhalation (vapours mg/l) 15.71

Skin corrosion/irritation
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.

General information
This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

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)
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

ATE inhalation (vapours mg/l) 11.0

Renewable hydrocarbons (diesel type fraction)

Acute toxicity - oral
Notes (oral LD₅₀) LD₃₀ >2000 mg/kg, Oral, Rat (EC B1 tris)

Acute toxicity - dermal
Notes (dermal LD₅₀) LD₃₀ > 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.

Fuels, diesel

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
EbL₅₀, 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)
(QSAR)

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)
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

Acute toxicity - microorganisms
EC₅₀, 30-180 minutes: > 1000 mg/l, Micro-organisms (wastewater sludge) (OECD 209)

Chronic aquatic toxicity
Chronic toxicity - aquatic invertebrates
NOEC, 21 days: 1 mg/l,
LOEC, 21 days: 3.2 mg/l,
WAF (OECD 211)
Sediment organisms
NOEC, 10 days: 373 mg/kg,
LOEC, 10 days: 1165 mg/kg,
LC₅₀, 10 days: 1200 mg/kg,

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.

Endocrine-disrupting properties
This product does not contain substances considered to have endocrine disrupting properties at levels of 0.1% or higher.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Neste Tempera Non-Road Diesel; Neste Pro Non-Road Diesel; MGODMA; DMA Barge; Neste Marine 0.1 Co-processed (DMA)

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.

Waste class
The waste code classification is to be carried out according to the European Waste Catalogue (EWC).
For example: 13 07 01 fuel oil and diesel.

SECTION 14: Transport information

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 HEATING OIL, LIGHT

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, Annex I: Energy-rich fuels and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
EU regulatory references for the safety data sheet:

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
ATE = Acute Toxicity Estimate
ACGIH = American Conference of Governmental Industrial Hygienists
TLV = Treshold Limit Value
TWA = Time-Weighted Average
DNEL = Derived No-Effect Level
PNEC = Predicted No-Effect Concentration
NOEL = No Observed Effect Level
WAF = Water Accommodated Fraction

Key literature references and sources for data

Training advice
DO NOT SIPHON PRODUCT BY MOUTH SUCTION.

Revision comments
Updated, sections: 2.3, 11.1, 12.6, 15.1

Revision date
17/04/2023

Supersedes date
15/08/2022

SDS number
5676

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.

Use Descriptor Codes, Industrial uses
Use as a fuel, (PROC: 1, 2, 8a, 8b, 16, 28; ERC: 7)

Use Descriptor Codes, Professional uses
Use as a fuel, (PROC: 1, 2, 8a, 8b, 16, 28; ERC: 9a, 9b)

Use Descriptor Codes, Consumer uses
Use as a fuel, (PC 13; ERC: 9a, 9b)
# Exposure scenario
## Use as a Fuel - Industrial

### Identification

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>Fuels, diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAS number</strong></td>
<td>68334-30-5</td>
</tr>
<tr>
<td><strong>Version number</strong></td>
<td>2020</td>
</tr>
<tr>
<td><strong>Es reference</strong></td>
<td>ES12a</td>
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</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
  - 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
  - PROC28 Manual maintenance (cleaning and repair) of machinery

### 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): 1.1E-06
- **Emission factor - soil**: Release fraction to soil from process (initial release prior to RMM): 0
Use as a Fuel - Industrial

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: 94.6%
Removal efficiency (total): 94.6%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 5 200 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, 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
Covers use at ambient temperatures. ( unless stated differently )

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

**Organisational measures**

General measures (skin irritants) Ensure there is no direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

General measures (flammability) For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration hazard) Do not ingest. If swallowed, then seek immediate medical assistance.

General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

**Risk management measures**
Use as a Fuel - Industrial

Bulk transfers
Dedicated facility (PROC 8b)
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Ensure no splashing occurs during transfer.
- Drum/batch transfers
Dedicated facility (PROC 8b)
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Ensure no splashing occurs during transfer.
- General exposures (closed systems) (PROC 1, PROC 2)
Handle substance within a closed system.
Sample via a closed loop or other system to avoid exposure.
- Use as a fuel (closed systems) (PROC 16)
Handle substance within a closed system.
- Equipment cleaning and maintenance (PROC 8a, PROC 28)
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.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Wear suitable coveralls to prevent exposure to the skin.
Clear spills immediately.
- Storage (PROC 1, PROC 2)
Use as a Fuel - Industrial

Store 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) ≤ 0.059
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.97

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

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. 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. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation.
## Exposure scenario
### Use as a Fuel - Professional

<table>
<thead>
<tr>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td><strong>CAS number</strong></td>
</tr>
<tr>
<td><strong>Version number</strong></td>
</tr>
<tr>
<td><strong>Es reference</strong></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
- 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
- PROC28 Manual maintenance (cleaning and repair) of machinery

### 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: 6 800 000 tonnes/year
- Fraction of Regional tonnage used locally: 0.0005
- Annual site tonnage: 3 400 tonnes
- Maximum daily site tonnage: 9.3 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): 0.0001

**Emission factor - water**
Release fraction to wastewater from wide dispersive use: 0.00001

**Emission factor - soil**
Release fraction to soil from wide dispersive use (regional only): 0.00001
Use as a Fuel - Professional

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: 94.6%
- Removal efficiency (total): 94.6%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: $1.1 \times 10^5$ 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 (%): ≥ 38.8. 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
- Covers use at ambient temperatures. (unless stated differently)

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

Organisational measures

General measures (skin irritants) Ensure there is no direct skin contact with product. Identify potential areas for indirect skin contact. Wear suitable gloves tested to EN374. Clear spills immediately. Wash off any skin contamination immediately. For further specification, refer to section 8 of the SDS.

General measures (flammability) For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration hazard) Do not ingest. If swallowed, then seek immediate medical assistance.

General measures applicable to all activities Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation. Drain down and flush system prior to equipment break-in or maintenance. Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Wear suitable coveralls to prevent exposure to the skin. Wear suitable gloves tested to EN374. Wear respiratory protection when its use is identified for certain contributing scenarios. Clear spills immediately. Dispose of this material and its container at hazardous or special waste collection point. Ensure control measures are regularly inspected and maintained. Consider the need for risk based health surveillance.

Risk management measures
Use as a Fuel - Professional

Bulk transfers
Dedicated facility
(PROC 8b)
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Ensure no splashing occurs during transfer.
- Drum/batch transfers
Dedicated facility
(PROC 8b)
Use drum pumps.
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Ensure no splashing occurs during transfer.
- Refuelling
(PROC 8b)
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.
- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
Ensure no splashing occurs during transfer.
- General exposures (closed systems)
(PROC 1, PROC 2)
Handle substance within a closed system.
Sample via a closed loop or other system to avoid exposure.
- Use as a fuel
(closed systems)
(PROC 16)
Handle substance within a closed system.
- Equipment cleaning and maintenance
(PROC 8a, PROC 28)
Drain down and flush system prior to equipment break-in or maintenance.
Use as a Fuel - Professional

Wear chemically-resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.
For further specification, refer to section 8 of the SDS.

- Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.
- Wear suitable coveralls to prevent exposure to the skin.
- Clear spills immediately.

Storage
(PROC 1, PROC 2)
Store 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) ≤ 0.022
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.089

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

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. 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. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation.
# Exposure scenario

## Use as a Fuel - Consumer

### 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>2020</td>
</tr>
<tr>
<td>Es reference</td>
<td>ES12c</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

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

### Environment

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

**SPERC**  
- ESVOC SPERC 9.12c.v1

### Non-Industrial

**Product sub-category**  
- PC13_1 Liquid: automotive refuelling  
  CONCAWE SCED 13.3.a  
- PC13_4 Liquid: Garden equipment - Refuelling  
  CONCAWE SCED 13.4.a  
- PC13_6 Liquid: home space heater fuel  
  CONCAWE SCED 13.5.a

### 2. Conditions of use affecting exposure (Non-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: 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

#### 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): 0.0001

**Emission factor - water**  
Release fraction to wastewater from wide dispersive use: 0.00001

**Emission factor - soil**  
Release fraction to soil from wide dispersive use (regional only): 0.00001
Use as a Fuel - Consumer

Environmental factors not influenced by risk management measures

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

Risk management measures

STP details
- Not applicable as there is no release to wastewater.
- Estimated substance removal from wastewater via domestic sewage treatment: 94.6%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 2.3E+05 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)

Product characteristics

Physical state
- Liquid

Concentration details
- Covers concentrations up to 100 %.

Amounts used

PC13_1 Liquid: automotive refuelling
- For each use event, covers use amounts up to 44 kg.

PC13_4 Liquid: Garden equipment - Refuelling
- For each use event, covers use amounts up to 750 g.

PC13_6 Liquid: home space heater fuel
- For each use event, covers use amounts up to 3.32 kg.

Frequency and duration of use

Covers use up to 1 time(s)/day.

PC13_1 Liquid: automotive refuelling
- Covers exposure up to 0.05 hours per event.

PC13_4 Liquid: Garden equipment - Refuelling
PC13_6 Liquid: home space heater fuel
- Covers exposure up to 0.033 hours per event.

Human factors not influenced by risk management

Potentially exposed body parts

PC13_1 Liquid: automotive refuelling, PC13_6 Liquid: home space heater fuel:
- Assumes that potential dermal contact is limited to palm of one hand.

PC13_4 Liquid: Garden equipment - Refuelling:
- Assumes that potential dermal contact is limited to inside hands/one hand/palm of hands.

Other given operational conditions affecting Non-industrial exposure
Use as a Fuel - Consumer

Setting

PC13_1 Liquid: automotive refuelling: Covers outdoor use.

Other given operational conditions affecting Non-industrial exposure

General measures (skin irritants) Ensure there is no direct skin contact with product. Wash off any skin contamination immediately.

General measures (flammability) For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

General measures (aspiration hazard) Do not ingest. If swallowed, then seek immediate medical assistance.

3. Exposure estimation (Environment 1)

Assessment method

Used Petrorisk model. (Hydrocarbon Block Method)

Risk-driving RCR - air compartment driven RCR(air) ≤ 0.045
Risk-driving RCR - water compartment driven RCR(water) ≤ 0.11

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.

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. 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. Available hazard data do not enable the derivation of a DNEL for aspiration effects. Risk Management Measures are based on qualitative risk characterisation.