SAFETY DATA SHEET
Neste alkylate gasoline, 4-stroke

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

1.1. Product identifier
Product name: Neste alkylate gasoline, 4-stroke
Product number: ID 10529
Internal identification: 130130, 130971, 130990
UFI: UFI: 3Q1N-YAVV-VY0S-FHKQ

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Distribution of substance Formulation & (re)packing of substances and mixtures Use as a fuel

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 (SI 2019 No. 720)
Physical hazards: Flam. Liq. 1 - H224
Health hazards: Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304
Environmental hazards: Aquatic Chronic 2 - H411

2.2. Label elements
Hazard pictograms

Signal word: Danger
Hazard statements: H224 Extremely flammable liquid and vapour.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H304 May be fatal if swallowed and enters airways.
H411 Toxic to aquatic life with long lasting effects.
Neste alkylate gasoline, 4-stroke

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.
P331 Do NOT induce vomiting.
P102 Keep out of reach of children.
P501 Dispose of contents/container in accordance with local regulations.

Contains

Naphtha (petroleum), full-range alkylate, butane-contg., Isopentane

2.3. Other hazards

Volatile. Vapours may form explosive mixtures with air. 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>Naphtha (petroleum), full-range alkylate, butane-contg.</th>
<th>65 - 80 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 68527-27-5</td>
<td>EC number: 271-267-0</td>
</tr>
</tbody>
</table>

Classification

Flam. Liq. 1 - H224
Skin Irrit. 2 - H315
STOT SE 3 - H336
Asp. Tox. 1 - H304
Aquatic Chronic 2 - H411

<table>
<thead>
<tr>
<th>Isopentane</th>
<th>20 - 35 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 78-78-4</td>
<td>EC number: 201-142-8</td>
</tr>
</tbody>
</table>

Classification

Flam. Liq. 1 - H224
STOT SE 3 - H336
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 a petroleum product and additives. Benzene (CAS 71-43-2) < 0,1 %. n-hexane (CAS 110-54-3) < 0,5 %. Total aromatics at maximum: 0,5 %.

Other information

REACH registration number:
Naphtha (petroleum), full-range alkylate, butane-contg.: 01-2119471477-29-XXXX
Isopentane: 01-2119475602-38-XXXX.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Remove person to fresh air and keep comfortable for breathing. For breathing difficulties, oxygen may be necessary. Get medical attention if symptoms are severe or persist.

Ingestion

Do not induce vomiting. Get medical attention immediately.
Neste alkylate gasoline, 4-stroke

Skin contact
Rinse immediately contaminated clothing and skin with plenty of water before removing
clothes. Wash skin thoroughly 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. Vapours in high concentrations are narcotic. May cause
nausea, headache, dizziness and intoxication. 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
Extremely flammable liquid and vapour. Risk of explosion. Vapours are heavier than air and
may spread near ground and travel a considerable distance to a source of ignition and flash
back. 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
Approach the spillage from upwind. 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. Avoid the accumulation
of vapours in low or confined areas. Use only in well-ventilated areas. 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
**Neste alkylate gasoline, 4-stroke**

**Methods for cleaning up**
Immediately start clean-up of the liquid and contaminated soil. 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. Vapours may accumulate on the floor and in low-lying areas. Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges. Use explosion-proof electrical equipment.

Use only outdoors or in a well-ventilated area. Try to avoid product volatilization during handling and transferring. 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. Clear up spills immediately and dispose of waste safely. 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. Protect from sunlight. 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 surfacing the loading and unloading stations. Store in tightly-closed, original container. Use containers made of the following materials: Stainless steel.

**7.3. Specific end use(s)**
Specific end use(s) Not known.

**SECTION 8: Exposure controls/Personal protection**

**8.1. Control parameters**

**Occupational exposure limits**
Solvent naphtha, group 1: 500 mg/m3 (8h), HTP 2020/FIN.
The individual limit values can be applied for the hydrocarbons.

**PNEC**
Not available.

**Category: Low boiling point naphthas (Gasolines)**

**DNEL**
- Workers - Inhalation; Short term systemic effects: 1300 mg/m³, (15 min)
- Workers - Inhalation; Short term local effects: 1100 mg/m³, (15 min)
- Workers - Inhalation; Long term local effects: 840 mg/m³, (8h)
- Consumer - Inhalation; Short term systemic effects: 1200 mg/m³, (15 min)
- Consumer - Inhalation; Short term local effects: 640 mg/m³, (15 min)
- Consumer - Inhalation; Long term local effects: 180 mg/m³, (24h)

**8.2. Exposure controls**

**Appropriate engineering controls**
Handle product within a predominantly closed system provided with extract 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).
Neste alkylate gasoline, 4-stroke

Eye/face protection
Spectacles.

Hand protection
Wear protective gloves. It is recommended that gloves are made of the following material: Nitrile rubber. 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
Protective clothing when needed. 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: Gas filter, type AX. 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Mobile liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Clear. Bluish when lubricant has been added.</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>-</td>
</tr>
<tr>
<td>Initial boiling point and range</td>
<td>30 - 200°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; 0°C</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Lower flammable/explosive limit: 1.4 % Upper flammable/explosive limit: 7.6 %</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>50 - 65 kPa @ 38°C , 84.1 kPa @ 50°C</td>
</tr>
<tr>
<td>Vapour density</td>
<td>&gt; 3 (Air = 1.0)</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.68 - 0.72 @ 15/4°C</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>The product has poor water-solubility. &lt; 50 mg/l @ 20°C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>log Kow: ≥ 4</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>~ 400°C</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>-</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Kinematic viscosity &lt; 1 mm2/s @ 38°C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not considered to be explosive.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Does not meet the criteria for classification as oxidising.</td>
</tr>
</tbody>
</table>

9.2. Other information
Other information Not known.

SECTION 10: Stability and reactivity

10.1. Reactivity
Neste alkylate gasoline, 4-stroke

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

10.2. Chemical stability
Stability Stable at normal ambient temperatures and when used as recommended.

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

<table>
<thead>
<tr>
<th>Toxicological effects</th>
<th>Based on available data the classification criteria are not met.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Irritating to skin. (OECD TG 404) The product irritates mucous membranes and may cause abdominal discomfort if swallowed. May cause respiratory irritation.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Based on available data the classification criteria are not met. (OECD TG 405)</td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Based on available data the classification criteria are not met. (OECD TG 406)</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based on available data the classification criteria are not met. (OECD TG 471, 476, 479).</td>
</tr>
<tr>
<td>Genotoxicity - in vitro</td>
<td>(OECD 474, 475)</td>
</tr>
<tr>
<td>Genotoxicity - in vivo</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data the classification criteria are not met. (OECD TG 453)</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Based on available data the classification criteria are not met. (OECD TG 421)</td>
</tr>
<tr>
<td>Reproductive toxicity - fertility</td>
<td>Based on available data the classification criteria are not met. (OECD TG 414, 416)</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td>May cause nausea, headache, dizziness and intoxication. Anaesthetic in high concentrations.</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>Based on available data the classification criteria are not met. (OECD TG 410, 412, 413, 453)</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Based on available data the classification criteria are not met. (OECD TG 410, 412, 413, 453)</td>
</tr>
<tr>
<td>STOT - repeated exposure</td>
<td>May be fatal if swallowed and enters airways. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td></td>
</tr>
</tbody>
</table>
Neste alkylate gasoline, 4-stroke

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.

Naphtha (petroleum), full-range alkylate, butane-contg.

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

Acute toxicity - dermal
Notes (dermal LD₅₀)
LD₅₀ > 2000 mg/kg, bw, Dermal, Rabbit (OECD 402).

Acute toxicity - inhalation
Notes (inhalation LC₅₀)
LC₅₀ > 5610 mg/m³, Inhalation, Rat (OECD 403).

Isopentane

Acute toxicity - oral
Notes (oral LD₅₀)
LD₅₀ > 2000 mg/kg, Oral, Rat (OECD TG 401, EU Method B.1)
LD₅₀ > 5000 mg/kg, Oral, Rat (OECD TG 423)

Acute toxicity - inhalation
Notes (inhalation LC₅₀)
LC₅₀ > 25.3 mg/l, Inhalation, Rat (4h) (OECD TG 403)

SECTION 12: Ecological information

12.1. Toxicity
Toxic to aquatic life with long lasting effects.

Acute aquatic toxicity

Acute toxicity - aquatic
invertebrates
EC₅₀, 48 hours: > 100 mg/l,
NOEC, 48 hours: 100 mg/l, Daphnia magna,
WAF (OECD 202, ref. report 086/15).

Acute toxicity - aquatic plants
EL₅₀, 96 hours: > 100 mg/l,
NOELR, 72 hours: 100 mg/l, Pseudokirchneriella subcapitata,
WAF (OECD 201, ref. report 081/15)

Ecological information on ingredients.

Naphtha (petroleum), full-range alkylate, butane-contg.

Acute aquatic toxicity

Acute toxicity - fish
LL₅₀, 96 hours: 8.2 mg/l,
(EPA 66013-75-009, OECD 203)

Acute toxicity - aquatic
invertebrates
EL₅₀, 48 hours: 4.5 mg/l,
NOELR, 48 hours: 0.5 mg/l,
(OECD 202).

Acute toxicity - aquatic plants
EL₅₀, 96 hours: 3.7 mg/l,
NOELR, 72 hours: 0.5 mg/l,
(OECD 201).

Chronic aquatic toxicity
Neste alkylate gasoline, 4-stroke

Chronic toxicity - fish early life stage
EL50, 21 days: 10 mg/l,
NOELR, 21 days: 2.6 mg/l,
(OECD 211).

Isopentane

Acute aquatic toxicity
Acute toxicity - fish
LL₅₀, 96 hours: 34.05 mg/l, Oncorhynchus mykiss (Rainbow trout)
(QSAR)

Acute toxicity - aquatic invertebrates
EL50, 48 hours: 59.4 mg/l, Daphnia magna
(QSAR)

Acute toxicity - aquatic plants
EL50, 72 hours: 25.1 mg/l, Selenastrum capricornutum
NOELR, 72 hours: 5.62 mg/l, Selenastrum capricornutum
(QSAR)

Chronic aquatic toxicity
Chronic toxicity - fish early life stage
NOELR, 28 days: 7.62 mg/l, Oncorhynchus mykiss (Rainbow trout)
(QSAR)

Chronic toxicity - aquatic invertebrates
NOELR, 21 days: 13.3 mg/l, Daphnia magna
(QSAR)

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.

Biodegradation
Inherently biodegradable.
(OECD 301F, ISO/DIS 14593, CAS 68527-27-5 & 68476-50-6)

Ecological information on ingredients.

Isopentane

Biodegradation
Rapidly degradable
(OECD TG 301 F)

12.3. Bioaccumulative potential

Bioaccumulative potential
Possibly bioaccumulative.

Partition coefficient
log Kow: ≥ 4

12.4. Mobility in soil

Mobility
Volatile. Volatilization is the fastest and most dominant elimination process in surface water and soil. 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
None known.
Neste alkylate gasoline, 4-stroke

**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

**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. Product residues retained in emptied containers can be hazardous.

### SECTION 14: Transport information

#### 14.1. UN number

**UN No. (ADR/RID)**
1203

#### 14.2. UN proper shipping name

**Proper shipping name (ADR/RID)**
UN 1203, GASOLINE

#### 14.3. Transport hazard class(es)

**ADR/RID class**
3

#### 14.4. Packing group

**ADR/RID packing group**
II

#### 14.5. Environmental hazards

**Environmentally hazardous substance/marine pollutant**
MARINE POLLUTANT

#### 14.6. Special precautions for user

**Hazard Identification Number (ADR/RID)**
33

**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**
Not applicable. MARPOL Annex I cargo.

### 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.
Neste alkylate gasoline, 4-stroke

## SECTION 16: Other information

### Abbreviations and acronyms used in the safety data sheet
- **DNEL** = Derived No-Effect Level
- **PNEC** = Predicted No-Effect Concentration
- **WAF** = Water Accommodated Fraction

### Key literature references and sources for data

### Revision comments
- Updated, sections: 1-3, 11-12, 14.7. Revised formulation.
- NOTE: Lines within the margin indicate significant changes from the previous revision.

### Revision date
- 01/01/2023

### Supersedes date
- 13/06/2022

### SDS number
- 5627

### Hazard statements in full
- **H224** Extremely flammable liquid and vapour.
- **H304** May be fatal if swallowed and enters airways.
- **H315** Causes skin irritation.
- **H336** May cause drowsiness or dizziness.
- **H411** Toxic to aquatic life with long lasting effects.
Exposure scenario
Distribution of Substance - Industrial

Identification

Product name
Low Boiling Point Naphthas (Gasolines); Benzene < 0,1 %

Version number
2018

1. Title of exposure scenario

Main title
Distribution of Substance - Industrial

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.

Sector of use
SU3 Industrial uses

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

SPERC
ESVOC SPERC 1.1b.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
Fraction of EU tonnage used in region: 0.1
Regional use tonnage: 18,700,000 tonnes/year
Fraction of Regional tonnage used locally: 2.0E-03
Annual site tonnage: 37,500 tonnes
Maximum daily site tonnage: 120 tonnes
**Distribution of Substance - Industrial**

**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): 1.0E-03

**Emission factor - water**
- Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05

**Emission factor - soil**
- Release fraction to soil from process (initial release prior to RMM): 1.0E-05

**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 humans via indirect exposure (primarily inhalation).

**STP details**
- Estimated substance removal from wastewater via domestic sewage treatment: 95.5%
- Removal efficiency (total): 95.5%
- Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 1100 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 90%.

**Water**
- Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 12. 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.

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

**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).

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

**Other given operational conditions affecting workers exposure**
Distribution of Substance - Industrial

**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**

**Organisational measures**
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)
No other specific measures identified.
- General exposures (closed systems)
  With sample collection
  No other specific measures identified.
- General exposures (open systems)
  Provide extract ventilation to points where emissions occur.

Process sampling
No other specific measures identified.
- Laboratory activities
  Handle in a fume cupboard or under extract ventilation.
- Bulk closed loading and unloading
  No other specific measures identified.
- Drum and small package filling
  Fill containers/cans at dedicated fill points supplied with local extract ventilation.
- Equipment cleaning and maintenance
  No other specific measures identified.
- Storage
  No other specific measures identified.

**3. Exposure estimation (Environment 1)**

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

**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)**
Distribution of Substance - Industrial

**Assessment method**

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

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
Formulation & (Re)packing of Substances and Mixtures - Industrial

Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Low Boiling Point Naphthas (Gasolines); Benzene &lt; 0,1 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Formulation &amp; (Re)packing of Substances and Mixtures - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.</td>
</tr>
<tr>
<td>Sector of use</td>
<td>SU3 Industrial uses</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC2 Formulation into mixture</td>
</tr>
<tr>
<td>SPERC</td>
<td>ESVOC SPERC 2.2.v1</td>
</tr>
</tbody>
</table>

Worker

<table>
<thead>
<tr>
<th>Process category</th>
<th>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2</td>
<td>Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment condition</td>
</tr>
<tr>
<td>PROC3</td>
<td>Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</td>
</tr>
<tr>
<td>PROC4</td>
<td>Chemical production where opportunity for exposure arises</td>
</tr>
<tr>
<td>PROC5</td>
<td>Mixing or blending in batch processes</td>
</tr>
<tr>
<td>PROC8a</td>
<td>Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</td>
</tr>
<tr>
<td>PROC8b</td>
<td>Transfer of substance or mixture (charging and discharging) at dedicated facilities</td>
</tr>
<tr>
<td>PROC9</td>
<td>Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</td>
</tr>
<tr>
<td>PROC14</td>
<td>Tabletting, compression, extrusion, pelletisation, granulation</td>
</tr>
<tr>
<td>PROC15</td>
<td>Use as laboratory reagent.</td>
</tr>
</tbody>
</table>

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

Product characteristics

Substance is complex UVCB. Predominantly hydrophobic.

Amounts used

<table>
<thead>
<tr>
<th>Fraction of EU tonnage used in region: 0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional use tonnage: 16,500,000 tonnes/year</td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally: 1.8E-03</td>
</tr>
<tr>
<td>Annual site tonnage: 30,000 tonnes</td>
</tr>
<tr>
<td>Maximum daily site tonnage: 100 tonnes</td>
</tr>
</tbody>
</table>

Frequency and duration of use

Continuous release. |
Emission days: 300 days/year
Formulation & (Re)packing of Substances and Mixtures - Industrial

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): 2.5E-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor - water</td>
<td>Release fraction to wastewater from process (initial release prior to RMM): 2.0E-03</td>
</tr>
<tr>
<td>Emission factor - soil</td>
<td>Release fraction to soil from process (initial release prior to RMM): 1.0E-04</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 humans via indirect exposure (primarily inhalation).

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 95.5%
Removal efficiency (total): 95.5%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 100 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 56.5%. |
| Water | Prevent leaks and prevent soil/water pollution caused by leaks. Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 94.7. 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

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour pressure</td>
<td>Vapour pressure &gt; 10 kPa at STP.</td>
</tr>
<tr>
<td>Concentration details</td>
<td>Covers percentage substance in the product up to 100% (unless stated differently).</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td>Covers daily exposures up to 8 hours (unless stated differently).</td>
</tr>
</tbody>
</table>

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. |
Formulation & (Re)packing of Substances and Mixtures - Industrial

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

**Organisational measures**
- 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)
  - No other specific measures identified.
- General exposures (closed systems)
  - With sample collection
  - No other specific measures identified.
- General exposures (open systems)
  - Provide extract ventilation to points where emissions occur.
- Process sampling
  - No other specific measures identified.
- Mixing operations (closed systems)
  - Provide extract ventilation to points where emissions occur.
- Laboratory activities
  - Handle in a fume cupboard or under extract ventilation.
- Bulk transfers
  - Ensure material transfers are under containment or extract ventilation.
- Transfer from/pouring from containers
  - Manual
  - Ensure material transfers are under containment or extract ventilation.
- Drum/batch transfers
  - Ensure material transfers are under containment or extract ventilation.
- Drum and small package filling
  - Fill containers/cans at dedicated fill points supplied with local extract ventilation.
- Equipment cleaning and maintenance
  - No other specific measures identified.
- Storage
  - No other specific measures identified.

3. Exposure estimation (Environment 1)

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

4. Guidance to check compliance with the exposure scenario (Environment 1)
Formulation & (Re)packing of Substances and Mixtures - Industrial

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 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>Low Boiling Point Naphthas (Gasolines); Benzene &lt; 0.1 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
</tbody>
</table>

1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Main title</th>
<th>Use as a Fuel - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process scope</td>
<td>Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.</td>
</tr>
<tr>
<td>Sector of use</td>
<td>SU3 Industrial uses</td>
</tr>
</tbody>
</table>

Environment

<table>
<thead>
<tr>
<th>Environmental release category</th>
<th>ERC7 Use of functional fluid at industrial site</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPERC</td>
<td>ESVOC SPERC 7.12a.v1</td>
</tr>
</tbody>
</table>

Worker

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

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: 1,400,000 tonnes/year
Fraction of Regional tonnage used locally: 1
Annual site tonnage: 1,400,000 tonnes
Maximum daily site tonnage: 4600 tonnes

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): 2.5E-03

Emission factor - water
Release fraction to wastewater from process (initial release prior to RMM): 1.0E-05

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

Environmental factors not influenced by risk management measures
Use as a Fuel - Industrial

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 humans via indirect exposure (primarily inhalation).

STP details

Estimated substance removal from wastewater via domestic sewage treatment: 95.5%
Removal efficiency (total): 95.5%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 4600 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 99.4%.

Water

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 76.9. 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.

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

Vapour pressure

Vapour pressure > 10 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

Organisational measures

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
Use as a Fuel - Industrial

General exposures (closed systems)
No specific measures identified.

- Bulk closed unloading
No specific measures identified.

- Drum/batch transfers
No specific measures identified.

- Refuelling
No specific measures identified.

- Refuelling aircraft
Ensure material transfers are under containment or extract ventilation.

- Use as a fuel (closed systems)
No specific measures identified.

- Equipment maintenance
No other specific measures identified.

- Storage
No specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

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

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>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Low boiling point naphthas (gasolines); Benzene &lt; 0.1%</td>
</tr>
<tr>
<td>Version number</td>
<td>2018</td>
</tr>
</tbody>
</table>

### 1. Title of exposure scenario

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main title</td>
<td>Use as a Fuel - Professional</td>
</tr>
<tr>
<td>Process scope</td>
<td>Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.</td>
</tr>
<tr>
<td>Sector of use</td>
<td>SU22 Professional uses</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC9a Widespread use of functional fluid (indoor)</td>
</tr>
<tr>
<td></td>
<td>ERC9b Widespread use of functional fluid (outdoor)</td>
</tr>
<tr>
<td>SPERC</td>
<td>ESVOC SPERC 9.12b.v1</td>
</tr>
</tbody>
</table>

### Worker

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

### 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: 1,190,000 tonnes/year
- Fraction of Regional tonnage used locally: 5.0E-04
- Annual site tonnage: 590 tonnes
- Maximum daily site tonnage: 1.6 tonnes

#### 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): 0.01
- Emission factor - water: Release fraction to wastewater from wide dispersive use: 1.0E-05
- Emission factor - soil: Release fraction to soil from process (initial release prior to RMM): 1.0E-05

#### Environmental factors not influenced by risk management measures
Use as a Fuel - Professional

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 humans via indirect exposure (primarily inhalation).

STP details
Estimated substance removal from wastewater via domestic sewage treatment: 95.5%
Removal efficiency (total): 95.5%
Maximum allowable site tonnage (Msafe), based on release following total wastewater treatment removal: 15 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

Water
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): ≥ 3.4. 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.

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

Vapour pressure
Vapour pressure > 10 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

Organisational measures
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
Use as a Fuel - Professional

General exposures (closed systems)
No other specific measures identified.

- Preparation of material for application
  Mixing operations
  (closed systems)
  No other specific measures identified.

- Bulk closed unloading
  No other specific measures identified.

- Drum/batch transfers
  No other specific measures identified.

- Refuelling
  No other specific measures identified.

- 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 intensive management supervision controls.

- Storage
  No other specific measures identified.

3. Exposure estimation (Environment 1)

Assessment method
Used Petrorisk model. (Hydrocarbon Block Method)

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

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

## Identification

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>Low Boiling Point Naphthas (Gasolines); Benzene &lt; 0,1 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version number</strong></td>
<td>2018</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>
<tr>
<td><strong>Sector of use</strong></td>
<td>SU21 Consumer uses</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><strong>SPERC</strong></td>
<td>ESVOC SPERC 9.12c.v1</td>
</tr>
</tbody>
</table>

## Non-Industrial

<table>
<thead>
<tr>
<th><strong>Product sub-category</strong></th>
<th>PC13_1 Liquid: automotive refuelling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PC13_2 Liquid: scooter refuelling</td>
</tr>
<tr>
<td></td>
<td>PC13_3 Liquid: garden equipment - use</td>
</tr>
<tr>
<td></td>
<td>PC13_4 Liquid: Garden equipment - Refuelling</td>
</tr>
</tbody>
</table>

## 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: 13,900,000 tonnes/year
- Fraction of Regional tonnage used locally: 5.0E-04
- Annual site tonnage: 7000 tonnes
- Maximum daily site tonnage: 19 tonnes

### 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): 0.01

**Emission factor - water**

Release fraction to wastewater from wide dispersive use: 1.0E-05

**Emission factor - soil**

Release fraction to soil from wide dispersive use (regional only): 1.0E-05

### Environmental factors not influenced by risk management measures

**Dilution**

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

## Risk management measures
Use as a Fuel - Consumer

Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).

**STP details**
- Estimated substance removal from wastewater via domestic sewage treatment: 95.5%
- Maximum allowable site tonnage (Msafe): 180 tonne/day
- Assumed domestic sewage treatment plant flow (m³/day): 2000.

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

**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)**

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>Vapour pressure &gt; 10 kPa at STP.</td>
</tr>
<tr>
<td><strong>Concentration details</strong></td>
<td>Covers percentage substance in the product up to 100% (unless stated differently).</td>
</tr>
</tbody>
</table>

**Amounts used**
- PC13_1 Liquid: automotive refuelling
  - For each use event, covers use amounts up to 37.5 kg.
- PC13_2 Liquid: scooter refuelling
  - For each use event, covers use amounts up to 3.75 kg.
- PC13_3 Liquid: garden equipment - use
  - For each use event, covers use amounts up to 750 g.
- PC13_4 Liquid: Garden equipment - Refuelling
  - For each use event, covers use amounts up to 750 g.

**Frequency and duration of use**
Use as a Fuel - Consumer

PC13_1 Liquid: automotive refuelling
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.05 hours per event.

PC13_2 Liquid: scooter refuelling
Covers use up to 52 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 0.03 hours per event.

PC13_3 Liquid: garden equipment - use
Covers use up to 26 days/year.
Covers use up to 1 time(s)/day.
Covers exposure up to 2.00 hours per event.

PC13_4 Liquid: Garden equipment - Refuelling
Covers use up to 26 days/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
PC13_1 Liquid: automotive refuelling. PC13_2 Liquid: scooter refuelling: Covers skin contact area up to 210.00 cm². PC13_4 Liquid: Garden equipment - Refuelling: Covers skin contact area up to 420.00 cm².

Other given operational conditions affecting Non-industrial exposure

Setting
PC13_1 Liquid: automotive refuelling. PC13_2 Liquid: scooter refuelling. PC13_3 Liquid: garden equipment - use: Covers outdoor use. PC13_4 Liquid: Garden equipment - Refuelling: Covers use in a one car garage (34 m³) under typical ventilation.

Temperature
Assumes activities are at ambient temperature (unless stated differently).

Room size
PC13_1 Liquid: automotive refuelling. PC13_2 Liquid: scooter refuelling. PC13_3 Liquid: garden equipment - use: Covers use in room size of 100 m³. PC13_4 Liquid: Garden equipment - Refuelling: Covers use in room size of 34 m³.

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)

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. 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 consumer exposures, unless otherwise indicated.

4. Guidance to check compliance with the exposure scenario (Health 1)
Use as a Fuel - Consumer

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.