

DATE OF EMISSION: 30/11/2010
DATE OF REVISION: 18/12/2018 Rev.6

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR PREPARED MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Substance name: Panta Racing Gasoline

Synonyms: PANTA RON 98, PANTA STREAM - Ron 100, NS Ron 102, PANTA ONE Ron 102, NR Ron 102,

PANTA MAX Ron 102, PANTA HP2 Ron 102, PANTA K4 RON 102, PANTA LEMS RON 102, PANTA TCR, PANTA SUPERMAX, NS+ Ron 105, NR+ Ron 105, PANTA CX Ron 110, PANTA SIX RON 113, PANTA XS Ron 115, MTV 2T Ron 102, MTV 4T Ron 102, MTV 2T+ (Ron 105), K4 Ron 102, MTV 4T-

01 Ron 102, MTV 4T+ (Ron 105), Kart Ron 102, F40, WTCC, Euro 6, EPA, EVO

CAS Number n.a. (mixture)
CE Number n.a. (mixture)
Index number n.a. (mixture)
Registration number n.a. (mixture)

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

Common uses: Fuel for motors and other industrial uses

Uses identified in the chemical safety report: General list of applications:

- 1. Industrial Use: production of the substance, use as intermediate product, distribution of the substance, formulation and (re)packaging of the substances and mixtures, use in coatings, use as fuel, use in cleaning products, production and working of rubber.
- 2. Professional use: Use as a fuel.
- 3. Consumer: Use as a fuel.

See section 16 for further information on the uses identified (Appendix 1) and on related exposure scenarios (Appendix 2).

USES ADVISED AGAINST: The pertinent uses are listed above. Other uses are advised against unless the use is evaluated before being implemented, and it is shown that the risks connected with that use are controlled.

1.3 Details of the supplier of the safety data sheet:

Company name PANTA DISTRIBUZIONE S.p.A.

Address S.S.235Km 47,980

City / Country 26010 BagnoloCremasco (CR) - Italy

Telephone +39.0373.235111
E-mail Competent technician info@panta.it

1.4 Emergency telephone number:

Bergamo

Centro antiveleni - 24/24 h

USSA Tossicologia Clinica Ospedali Riuniti di Bergamo - Largo Barozzi, 1 Tel. 800 883300

Firenze

Centro antiveleni - 24/24 h

Ospedale Careggi - Viale Pieraccini, 17 Tel.055 7947819

Foggia

Centro antiveleni – 24/24 h

Azienda Ospedaliera Universitaria di Foggia – Viale Pinto, 1 Tel.0881 732326

Milano

Centro antiveleni – 24/24 h

Ospedale Niguarda Ca'Granda - Piazza Ospedale Maggiore, 3 Tel.0266101029

Napoli

Centro antiveleni – 24/24 h

Ospedale Cardarelli - Via Cardarelli, 9 Tel.0817472870

Pavia

Centro antiveleni – 24/24 h

Centro Nazionale di Informazione Tossicologica Fondazione Salvatore Maugeri Clinica del Lavoro e della Riabilitazione IRCCS - Via Salvatore Maugeri, 10 Tel.038224444

Roma

Centro antiveleni - 24/24 h

Policlinico A. Gemelli - Largo Agostino Gemelli, 8 Tel.063054343

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Centro antiveleni - 24/24 h

Policlinico Umberto I - Via del Policlinico, 155 Tel. 0649978000

SECTION 2. HAZARDS IDENTIFICATION

Physical-chemical dangers: This mixture is extremely inflammable.

Health hazards: The mixture has irritating effects on the skin. Inhaling the vapours may cause drowsiness and

dizziness. Due to its low viscosity the product can be inhaled into the lungs immediately after ingestion or later in case of spontaneous or provoked vomiting, and if this occurs chemical pneumonia may arise. It may cause neoplastic effects. It may reduce fertility and be harmful to to

the foetus.

Dangers to the environment: The mixture has toxic effects on aquatic organisms and long-term effects on the aquatic

environment.

2.1 Classification of the substance or mixture

Classifications in terms of (CE) Regulation 1272/2008 (CLP/GHS)

Flam. Liquid 1:-H224 Asp. Tox. 1: H304 Skin Irrit. 2: H315 STOT SE 3: H336 STOT RE 2 H373 Eye.Irrit.2 H319

Muta. 1B: H340 Carc. 1B: H350 Repr. 2: H361 d-f Aquatic Acute 1: H400 Aquatic Chronic 2: H411

A list of the extended H phrases is given in Section 16.

2.2 Label elements



Warning: DANGER Danger indications:

H224: Highly inflammable liquid and vapours

H304: Can be lethal in case of ingestion and penetration of the respiratory tracts

H315: Causes skin irritationH319 Causes serious eye irritationH336: Can cause drowsiness or dizziness

H373 May cause damage to organs through prolonged or repeated exposure

H340: Can cause genetic mutations

H350: Can cause cancer

H361 d: Suspected to be harmful to foetuses
H361 f: Suspected to be harmful to fertility

H400 Very toxic to aquatic life

H411: Toxic for aquatic organisms with long-term effects

Precautionary advice

Prevention:

P201: Obtain specific instructions before use

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P210: Keep away from heat/sparks/open flames/hot surfaces - No smoking

P280: Wear gloves/protective clothing/Protect the eyes/face

Reaction

P301+310: IN CASE OF INGESTION: immediately contact a POISON UNIT or a physician

P331 Do not provoke vomiting

Conservation:

P403+233: Keep the container tightly closed in a well ventilated place

Disposal

P501: Dispose of the product/receptacle in conformity to Local Legislation

Other information: H P Notes

2.3 Other dangers

The vapours mix with air and become inflammable and explosive. The vapours are heavier than air: they can build up in confined spaces or depressions and spread at ground level, and can create risks of fire and explosion even at a distance. In some circumstances the product can accumulate significantly strong static electricity charges, with the risk of sparks that can ignite fires or explosions. The product does not satisfy the criteria for PBT or vPvB classification according to appendix XIII of REACH.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

n.a.

3.2 Mixtures

Mixture that contains the following components:

1) <u>UVCB substance</u>: Naphtha (petrol) with a low boiling point ("Complex combination of hydrocarbons made up mainly of paraffin, cycloparaffin, aromatic and olefinic hydrocarbons, with a number of atoms of carbon, prevalently C3 - C12 and boiling point between 30°C and 260°C").

CAS 86290-81-5, INDEX N° 649-378-00-4, Registration n°: 01-2119471335-39-XXXX

Concentration: from 65% to 90% w/w

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liquid 1 H224 Asp. Tox. 1 H304 Skin Irrit. 2 H315 STOT Single Exp. 3 H336

Muta. 1B H340 Carc. 1B H350 Repr. 2 H361 d-f Aquatic Acute 1: H400 Aquatic Chronic 2 H411

Various chemical compounds can be identified, depending on the characteristics and origin of the components, and the final chemical composition of the naphtha. These compounds are added deliberately. The most important for classification purposes are indicated below.

Note: the classification of the component "Naphtha (petrol) with a low boiling point" is attributed in relation to the worst case (content of the individual components all above the specific classification limits).

a) Benzene: CAS 71-43-2, INDEX N° 601-020-00-8. (concentration 0.1 < x < 1% by weight)

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2 H225 Carc. 1A H350 Muta.1B H340 STOT RE 1 H372 Asp.Tox.1. H304

Eye.Irrit.2 H319

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Skin.Irrit.2 H315

b) n-hexane CAS 110-54-3, INDEX N° 601-037-00-0, Registration n° 01-2119480412-44-XXXX (concentration from 3 % up to 5% by vol)

(CE) Regulation 1272/2008 Classification (CLP):

Flam.Liq.2 H225

Repr.2 H361f

Asp.Tox.1 H304

Skin Irrit.2 H315

STOT RE 3 Cat 2 H373

STOT SE 3 H336

Aquatic Chronic 1 H411

2) Compounds oxygenated 15 % max. by vol, overall

Can contain one or more of the following compounds:

a) ETBE ethyl tertiary butyl ether, CAS 637-92-3, Registration n° 01-2119452785-29-XXXX, Self-classification

(CE) Regulation 1272/2008 Classification (CLP):

Flamm.Liq.2 H225

STOT SE 3 H336

b) TAME tertiary amyl methyl ether, CAS 994-05-8, INDEX N° 603-213-00-2, Registration n° 01-2119457610-43-XXXX

(CE) Regulation 1272/2008 Classification (CLP):

STOT SE 3 H336

Acute Tox. 4 H302

Flam. Liq. 2 H225

3) Ethanol CAS 64-17-5, INDEX N° 603-002-00-5, Registration n° 01-2119457610-43-XXXX from 0 up to 10% by vol.

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2: H225

4) Toluene: CAS 108-88-3, INDEX N° 601-021-00-3, Registration n°01-2119471310-51-XXXX (concentration from 10 up to 20 % by

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2 H225

Repr.2 H361d

STOT RE 2 H373

Asp.Tox.1. H304

Eye.Irrit.2 H319

Skin.Irrit.2 H315

5) MTBE methyl-tertiary-butyl ether, CAS 1634-04-4, INDEX N° 603-181-00-X, Registration n° 01-2119457610-43-XXXX

from 0 up to 15% by vol

(CE) Regulation 1272/2008 Classification (CLP):

Flamm.Liq.2 H225

Skin.Irrt. H315

6) Cyclohexane, CAS 110-82-7 N.INDEX 601-017-00-1, Registration n° 01-2119463273-41-XXXX

from 0 up to 10% by vol

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 2: H225

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> Skin.Irrt.2: H315 Asp. Tox. 1: H304 STOT SE 3: H336 Aquatic Chronic 1: H410

Aquatic Acute 1: H400

6) Xylene - all isomers, CAS 1330-20-7 N.INDEX 601-022-00-9, Registration n° 01-2119488216-32-XXXX

from 0 up to 35% vol

(CE) Regulation 1272/2008 Classification (CLP):

Flam. Liq. 3: H226 Skin.Irrt.2: H315 Acute Tox. 4: H332 Acute Tox. 4: H312 Asp. Tox. 1: H304

A list of the extended H phrases is given in Section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

Contact with the eyes: Rinse gently with water for a few minutes, if worn remove contact lenses if the situation makes it possible to do so easily. If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.

Contact with the skin: Remove contaminated clothing, contaminated footwear and dispose of them safely. Wash affected area

with soap and water. If irritation, swelling or flushing occurs, obtain medical advice from a specialist.

For minor thermal burns, cool the burnt part. Hold the burnt area under cold running water for at least five minutes, or until the pain subsides. Body hypothermia must be avoided.

When using high-pressure equipment, injection of the product can occur. If high-pressure injuries occur,

immediately seek professional medical attention. Do not wait for symptoms to develop.

Ingestion / aspiration: Do not induce vomiting as there is high risk of aspiration. Do not give anything by mouth to an unconscious

person.

If spontaneous vomiting occurs, keep the head down to avoid any risk of aspirating the vomit into the lungs.

Inhalation: If breathing is difficult, move the victim to the open air and keep at rest in a position comfortable for

If the victim is unconscious and is not breathing, check that there is nothing obstructing respiration and get a

specialised person to apply artificial respiration. If necessary, give external cardiac massage and obtain medical

If the victim is breathing, keep them on their side in a safe position. Administer oxygen if necessary.

4.2 Most important symptoms and effects, both acute and delayed

Can cause skin irritation and slight eye irritation. Inhalation of vapours may cause headache, nausea, vomiting and an altered state of consciousness. In case of ingestion few or no symptoms are expected. If any, nausea and diarrhoea might occur.

Indication of any immediate medical attention and special treatment needed

In case of ingestion, always assume that aspiration has occurred. Immediately transfer the victim to hospital. Do not wait for symptoms to develop.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media 5.1

Small size fires: earth or sand, carbon dioxide, foam, or dry chemical powder.

Large size fires: foam, atomised water. Note: the use of a diffused water jet (atomised water) is reserved to specifically trained personnel. Other inert gases (subject to regulations).

Unsuitable extinguishing means Do not use water jets aimed at the product that is burning, as this may cause splashing and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

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5.2 Special hazards arising from the substance or mixture

Incomplete combustion could generate a complex mixture of solid and liquid particles dispersed in the air and gas, including CO (carbon monoxide), SO_x (sulphur oxides), or H_2SO4 (sulphuric acid), and unidentified organic and inorganic compounds.

5.3 Advice for firefighters

In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Stop or contain leak at the source, if safe to do so. Avoid direct contact with released material. Stay upwind. In case of large spillages, alert occupants in downwind areas. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Excepting for cases of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). If required, notify relevant authorities according to all applicable regulations.

Small spillages: normal antistatic working clothes are usually adequate.

Large spillages: full body suit of chemically resistant and antistatic material. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Gloves made of PVA (polyvinyl alcohol) are not water-resistant, and are not suitable for emergency use. Work helmet. Anti-static and non-slip safety shoes or boots that are resistant to the chemical agents. Goggles and /or face shield, if splashes or contact with eyes are possible or anticipated. Respiratory protection: A half or full-face respirator with an organic vapour filter(s), or a Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and foreseeable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

6.2 Environmental precautions

Prevent product from leaking into sewers, rivers or other bodies of water.

6.3 Methods and materials for containment and cleaning up

Spilling on the ground: If necessary contain the product with dry earth, sand or similar non-combustible materials. Large spillages may be carefully covered with foam, if available, to limit fire risk. Do not use direct jets. When inside buildings or confined spaces, ensure adequate ventilation. Absorb spilled product with suitable non-combustible materials. If it is necessary to store any contaminated materials for safe disposal, only suitable containers (airtight, labelled, sealed, waterproof, earthed and bonded) should be used. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations.

Spilling in water: In case of small spillages in closed waters (e.g. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbent materials. Large spillages: if possible, contain larger spillages in water using floating barriers or other mechanical means only if this is strictly necessary and if the risk or fire and explosion can be adequately controlled, otherwise leave the product to evaporate and disperse naturally. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. If possible, collect the product and contaminated materials with mechanical means, and store/dispose of according to relevant regulations.

recommended measures are based on the most likely spillage scenarios for this material. Local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions.

6.4 Reference to other sections

For more information regarding personal protective equipment see section " Exposure control/personal protection".

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Obtain special instructions before use. Risk of explosive mixtures of vapour and air. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed.

Take precautionary measures against static electricity. Ensure earthing of containers, tanks and transfer/receiving equipment. The vapour is heavier than air. Be particularly careful of accumulation in pits and confined spaces (1051). Keep away from

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heat/sparks/open flames/hot surfaces. No smoking. Use only bottom loading of tanks, in compliance with European legislation. Do not use compressed air for filling, discharging, or handling operations. Avoid contact with skin and eyes. Do not ingest. Do not breathe vapours.

Use and store only outdoors or in a well-ventilated area. Avoid contact with the product. Use adequate personal protective equipment as needed.

Avoid releasing into the environment. For more information regarding personal protective equipment and operational conditions see Exposure scenarios.

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7.1.2 Indications regarding health in the workplace

Do not inhale the mist / vapours / aerosols. Avoid contact with skin. Keep away from food and beverages (1096). Do not eat, drink or smoke when using this product. Wash the hands thoroughly after handling. Do not use contaminated clothing again.

7.2 Conditions for safe storage, including any incompatibilities

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Storage installations should be designed with adequate means to prevent ground and water pollution in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations, only after cleaning up the tank. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability. Store separately from oxidising agents.

Recommended materials: for containers, or container linings use mild steel or stainless steel. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Check compatibility with the manufacturer in relation to usage conditions.

If the product is supplied in containers, only store it in the original container of a container that is suitable for the type of product. Store in a well-ventilated place.

Keep containers tightly closed and properly labelled. Protect from sunlight.

Light hydrocarbon vapours can build up in the headspace of containers. These can cause a danger of fire or explosion. Open slowly in order to control possible pressure release. Empty containers may contain combustible product residues. Do not weld, solder, drill, cut or incinerate empty containers, unless they have been properly cleaned.

7.3 Specific end uses

See the enclosed exposure scenarios.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Limit exposure values (mixture components)

PETROL
ACGIH 2016:
TLV®-TWA: 300 ppm
TLV®-STEL: 500 ppm

ETHYL TERTIARY BUTYL ETHER (ETBE)

ACGIH 2016: TLV®-TWA: 25 ppm

METHYL TERTIARY BUTYL ETHER (MTBE)

ACGIH 2016: TLV®-TWA: 50 ppm

TERTIARY AMYL METHYL ETHER (TAME)

ACGIH 2016: TLV®-TWA: 20 ppm

BENZENE

Legislative Decree 81/08 and subsequent amendments and additions (Italy)

Limit values (8 hours): 1 ppm-3,25 mg/m³-(skin)

ACGIH 2016: TLV®-TWA: 0.5 ppm TLV®-STEL: 2.5 ppm

N-HEXANE

Legislative Decree 81/08 and subsequent amendments and additions (Italy)

Limit values (8 hours): 20 ppm-72 mg/m³

ACGIH 2016: TLV®-TWA: 50 ppm

TOLUENE

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Legislative Decree 81/08 and subsequent amendments and additions (Italy)

Limit values (8 hours): 50 ppm-192 mg/m³-(skin)

ACGIH 2016: TLV®-TWA: 20 ppm

ETHANOL ACGIH 2016:

TLV®-STEL: 1000 ppm.

XYLENE

Legislative Decree 81/08 and subsequent amendments and additions (Italy)

Limit values (8 hours): 50 ppm-221 mg/m³-(skin)

ACGIH 2016:

TLV®-TWA: 434 mg/m³ TLV®-STEL: 150 ppm

CICLOHEXANE

Legislative Decree 81/08 and subsequent amendments and additions (Italy)

Limit values (8 hours): 100 ppm-350 mg/m³-(skin)

ACGIH 2016:

TLV®-TWA: 360 mg/m³

Biological limit values (IBE)

BENZENE

IBE: Mercapturic S-Phenyl acid in the urine 25 μg/g creatinine; Trans acid, trans muconic in urine 500 μg/g creatinine

DNEL (Derived Non Effect Level)

PETROL:

	DNEL Workers			DNEL General population				
Means of exposure	Chronic, local effects	Chronic, systemic effects	Acute, local effects	Acute, systemic effects	Chronic, local effects	Chronic, systemic effects	Acute, local effects	Acute, systemic effects
oral	n.a.	n.a.	n.a.	n.a.	n.a.	Note (a) (c)	n.a.	n.a.
dermal	Note (c)	Note (a) (b)	Note (c)	Note (a) (b)	Note (c)	Note (a) (b)	Note (a)	Note (a) (b)
inhalation	840 mg/m³/8 ore	Note (a) (b)	1100 mg/m³/15 min	1300 mg/m³/15 min	180 mg/m³/8 ore	Note (a) (b)	640 mg/m³/15 min	1200 mg/m³/15min

Note (a): If the concentration of benzene in the air is sufficiently high, a DMEL-workers-inhalation for benzene of 1 ppm must be taken into consideration. If dermal exposure is suspected, a reference dermal value for workers of 23,4 mg of benzene / kg / day must be taken into consideration.

Note (b): No danger has been identified for this means of exposure.

Note (c): The data available does not make it possible to estimate a DNEL.

DMEL (Derived Minimum Effect Level)

Not identified because sufficient dosage describers are not available.

PNEC(S) (Predicted Non Effect Concentration)

See the enclosed exposure scenarios.

8.2 Exposure controls

8.2.1 Suitable technical checks

Minimise exposure to mists/vapours/aerosols. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content and flammability.

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8.2.2 Personal protection measures

(a) Eye / face protection

In the absence of containment systems and where there is a risk of contact with the eyes/face, wear protection for the head and face (visor and/or protective goggles (EN 166).

(b) Skin protection:

i) Hand protection

In the absence of containment systems and where there is a danger of contact with the skin, use gloves with wrist bands that are highly resistance to hydrocarbons and have felt on the inside. Presumably adequate materials: nitrile, PVC or PVA (polyvinyl alcohol) with a protective index for chemical agents of at least 5 (permeation time > 240 minutes). Use the gloves according to the conditions and within the limits set by the manufacturer. If necessary, refer to the UNI EN 374 standard. Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.

ii) Other

If clothing gets contaminated change it and clean it immediately.

(c) Respiratory protection

In confined spaces: use appropriate protective devices for the respiratory tract: full-face masks fitted with an AX type filter cartridge (brown for organic vapours with a low boiling point). If exposure levels cannot be determined or estimated with adequate confidence, or an oxygen deficiency is possible, only SCBA's should be used (EN 529).

In the absence of containment systems: use appropriate protective devices for the respiratory tract: full-face masks fitted with an AX type filter cartridge (brown for organic vapours with a low boiling point).

(d) Thermal dangers: See letter b) above.











8.2.3 Environmental exposure checks

Avoid releasing into the environment. Storage installations should be designed with adequate means to prevent ground and water pollution in case of leaks or spills.

Treatment of waste water is required.

Prevent the release of undissolved substances or recover them from waste water.

Do not apply industrial sludge to natural soils.

Sludge generated by treating industrial waters must be incinerated, contained or treated. For further details, see the enclosed exposure scenarios.

8.3 Other

For additional information regarding personal protective equipment and operational conditions see Exposure scenarios.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) A	Appearance	clear, colorless liquid, pale yellow and violet
	Odour	Of petrol
c) (Olfactory threshold	n.d.
d) p	оН	n.a. because not inside water solution
e) /	Melting point / freezing point	< 60°C
f) /	Initial boiling point and boiling interval	Approximately 30 to 260°C (ISO 3405)
g) F	Flash point	< - 40°C (EN ISO 13736)
h) <i>E</i>	Evaporation rate	n.a.
i) /	Inflammability (solids, gases)	n.a.
	Upper / lower inflammability or explosiveness limits	LEL 1,4%; UEL 7,6%
k) \	Vapour tension	4-240 kPa at 37,8°C (EN 13016-1)
I) \	Vapour density	n.a.

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m) Density	720-780 kg/m3 at 15 ° C (EN ISO 12185)
n) Solubility	Solubility in water not applicable as this is a UVCB substance.
o) N-octanol / water breakdown coefficient	Not applicable because this is a UVCB substance
p) Spontaneous ignition temperature	>280°C
q) Decomposition temperature	n.a.
r) Viscosity	< 1 mm ² /s at 37,8°C
s) Explosive properties	No chemical group can be associated with the molecule with explosive
	properties
t) Oxidant properties	Not necessary (column 2 of REACH in appendix VII).

We wish to point out that the data given above refers to the principal component in the mixture (UVCB Substance: Petrol CAS 86290-81-5).

9.2 Other information

Not included.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

The mixture does not present further dangers related to reactivity other than those indicated in the sub-sections that follow.

10.2 Chemical stability

This mixture is stable in relation to its intrinsic properties.

10.3 Possibility of hazardous reactions

Contact with strong oxidants (such as peroxides or chromates) can cause a danger of fire. A mixture with nitrates or other strong oxidants (such as chlorates, perchlorates, and liquid oxygen) can generate an explosive mass. The sensitivity to heat, friction and shock cannot be evaluated beforehand.

10.4 Conditions to avoid

Store separately from oxidising agents.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Avoid static electrical charges forming.

10.5 Incompatible materials

Strong oxidants.

10.6 Hazardous decomposition products

The mixture does not decompose when used for the intended purposes.

SECTION 11. TOXICOLOGICAL INFORMATION

We wish to point out that the information given in this section relates to the mixture's principal component (UVCB Substance: Petrol CAS 86290-81-5).

11.1 Information on toxicological effects

No experimental data is available on absorption, distribution, metabolism and elimination of the product as a whole, but numerous toxicokinetic studies are available on the principal constituents. Most of the constituents are absorbed by inhalation. Absorption by inhalation is directly proportional to the molecular weight of the constituents, and so the n-paraffins are absorbed more than the iso paraffins, and the aromatics are absorbed more that the corresponding paraffins. The constituents with a low molecular weight (butane and pentane) are poorly absorbed because they are exhaled. The metabolism of the molecules absorbed is similar to that of the alcohols, with excretion via the kidneys. Cutaneous absorption of the components in the vapour phase is limited and is around 1% of total absorption by inhalation. Cutaneous absorption of liquid components is also very low because they evaporate quickly.

Most of the components are absorbed by the gastrointestinal tract.

a) Acute toxicity:

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Although the product is dangerous if inhaled into the lungs and causes a serious drop in the SNC in case of prolonged exposure, studies on the acute toxicity of naphtha orally, cutaneously, and by inhalation did not highlight effects in the conditions defined by the test protocols according to the regulation on hazardous substances. Therefore the results do not point to any classification in terms of the standard on hazardous substances.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source			
By mouth						
RAT Oral (gavage) OECD Guideline 401 DL50:>5000 mg/kg (M/F)		Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1986a)			
By inhalation						
RAT Inhalation of vapours OECD Guideline 403	LC50:>5610 mg/m ³ (M/F)	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1992g)			
Via the skin						
RABBIT OECD Guideline 402	DL50: >2000 (M/F)	Key study Reliable with restrictions CAS 86290-81-5	UBTL Inc (1986d)			

b) Skin corrosion / irritation

The potential for skin irritation of the samples that belong to this product's category was tested in a large number of studies, generally carried out on rabbits. The conclusions of these studies indicate that petrol is a skin irritant without evidence of deep injuries (corrosion). These results therefore indicate classification of the substance as Skin Irrit. 2 H315 (Causes skin irritation).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RABBIT Occlusive treatment for 24/48/72 hours OECD Guideline 404	Irritant Average erythema score: 2,56	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1995

c) Serious eye damage / irritation

The potential for skin irritation of the samples that belong to this product's category was tested in a large number of studies, generally carried out on rabbits. The conclusions of these studies indicate a potential for moderate eye irritation associated with exposure to vapours at a concentration exceeding 200 ppm, however, the dosage-response information is not conclusive. These results do not point to any classification in terms of the standard on hazardous substances.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RABBIT Occlusive treatment for 24/48/72 hours OECD Guideline 405	Non irritant Average conjunctival score: 0,06	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1985a)

d) Respiratory or skin sensitisation

Respiratory sensitisation

This endpoint is not a REACH requirement. The products that belong to the naphtha category do not cause sensitisation of the respiratory tract and so no classification of the substance is necessary.

Skin sensitisation

Various skin sensitisation studes have been carried out on naphtha (appendix V method B.6 (sensitisation of the skin); Buehler method).

The results obtained from these studies indicate the absence of potential skin sensitisation and so no classification of the substance is necessary.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
GUINEA PIG Guideline 406	Non sensitising	Key study Reliable without restrictions CAS 86290-81-5	UBTL Inc (1990i)

e) Germ cells mutagenicity

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The mutagen potential of naphtha has been amply studied in a series of live and in vitro tests. Most of the studies did not show coherent proof of mutagen activity. The classification as a mutagen is attributed due to the presence of benzene in c>0,1%. Muta Cat 2; Muta 1 B H340 (can cause hereditary genetic alterations).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
In vitro gene mutation in Salmonella thyphimurium OECD TG 471	Negative	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1977
In vivo, chromosome aberration RAT OECD TG 471	Negative	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (API) 1977

f) Cancerogenicity

Most of the studies carried out on animals with the vaporised product showed an increased incidence of tumour at a hepatic level. However, the vapourised product contains the most heavy aromatic components, responsible for tumours arising that are not present in the vapour phase to which man is normally exposed. Carcinogenesis studies carried out on naphtha are not sufficient to support classification as a carcinogenic, which is however attributed due to the presence of benzene in C>0,1%. Cl Carc. Cat. 2; Carc. 1B H350 (can cause cancer).

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source				
Via the skin							
MOUSE OECD Guideline 451 Exposure for 102 weeks (3 times a week)	NOAEL (carcinogenicity) 0,05 ml male No neoplastic effect observed	Key study Reliable without restrictions CAS 86290-81-5	American Petroleum Institute (1983b)				

NOTE: Cancerogenicity orally is not an endpoint required by REACH.

g) Reproductive toxicity

Toxicity for reproduction

Most of the studies did not show coherent proof of toxicity for fertility. Classification as a danger to fertility is attributed due to the presence of the n-hexane in C>3% (Repr. Cat. 3.; Repr. 2: H361 (suspected of harming fertility or the foetus).

A summary of the most representative studies in the registration dossier is given below.

7						
Method	Result	Comments	Source			
RAT		Kov study	Bui Q.Q., Burnett			
Doses: 5090, 12490, 24690 mg/m ³	NOAEL 24700	Key study Reliable without restrictions	D.M.,Breglia			
OECD Guideline 421	mg/m³ (M/F)	CAS 64741-66-8	R.J., Koschier			
Inhalation of vapours		CAS 04/41-00-8	F.J.,Lapadula E.S. (1998)			

Toxicity for development / teratogenesis

Most of the studies did not show coherent proof of toxicity for a foetus. Classification as a teratogen (Repr. Cat. 3.; Repr. 2: H361 - suspected of harming fertility or the foetus) is attributed due to the presence of the toluene in C>3 %.

A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source
RAT Doses: 2653, 7960, 23900 mg/m³ OECD Guideline 414 (Prenatal developmental toxicity study) Inhalation of vapours	NOAEL 23900 mg/m ³ no adverse effect	Key study Reliable without restrictions	L.Roberts, R White, Q. Bui. W.Daughtrey, F.Koschier, S.Rodney (2001)

h) Specific toxicity for target organs (STOT) - single exposure

Petrol is classified STOT SE 3 H336 (can cause drowsiness and dizziness).

i) Specific toxicity for target organs (STOT) - repeated exposure

Oral: No information in the registration dossier

Inhalation: At very high doses $20,000 - 30,000 \text{ mg/m}^3$, only some studies showed some slight effect such as variations in body weight, variation in the weight of organs, and variations in haematological parameters.

Cutaneous: The studies show a low potential for systemic toxicity.

No classification envisaged by the standard for hazardous substances.

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A summary of the most representative studies in the registration dossier is given below.

Method	Result	Comments	Source				
Oral							
RAT, Subacute (gavage) 500 mg/kg/day 500 mg/kg/day 28 days / 1 time per day for 5 days a week	NOAEL< 500mg/kg (male): specific renal effects in male rats not considered of biological relevance for man.	Support study Reliable with restrictions CAS 64741-63-5	Halder CA et al. 1985				
	Inhalation						
RAT systemic effects (M/F) Inhalation (vapour) Doses repeated 28 days OECD 412	NOAEC: 9840 mg/m ³ specific renal effects in male rats not considered of biological relevance for man.	Key study Reliable without restrictions CAS 86290-81-5	ARCO 1993 (Atlantic Richfield Company)				
RAT local/systemic effects (M/F) Inhalation (vapour) Doses repeated 90 days OECD TG 413	NOAEC (local effects): 10000mg/kg: reddy nasal secretions (male / female) specific renal effects in male rats not considered of biological relevance for man. NOAEC (systemic effects): 20000 mg/m³ specific renal effects in male rats not considered of biological relevance for man.	Key study Reliable without restrictions	EPA 2005				
Cutaneous							
OECD Guideline 410 (21/28 days)	NOAEL (systemic effects): 3750 mg/m3	Key study Reliable with restrictions CAS 86290-81-5	UBTL, Inc. 1985				

j) Aspiration hazard

Since petrol has a viscosity of less than 1 mm2/sec at 37,8°C it is possible that the product could be aspirated into the lungs, according to the classification contained in appendix I, part 3 of Regulation 1272/2008.

The product can therefore be classified Asp. Tox. 1 H304 (Can be lethal in case of ingestion and penetration of the respiratory tracts).

SECTION 12. ECOLOGICAL INFORMATION

We wish to point out that the information given in this section relates to the mixture's principal component (UVCB Substance: Petrol CAS 86290-81-5).

On the basis of the ecological information given below, for toxicity for invertebrates and algae and in terms of the criteria indicated in the standard for hazardous substances, naphtha is classified as dangerous for the environment Aquatic Chronic 2 H411.

12.1 Toxicity

A summary of the most representative studies in the registration dossier is given below.

Endpoint	Result		Comments		
Aquatic toxicity					
Invertebrates Daphnia magna Short-term	EL50 48/hours: NOELR 48/hours:	4,5 mg/lit 0,5 mg/lit	Key study Exxon Biomedical Sciences, Inc. 1995 Reliable without restrictions OECD Guideline 202		
Invertebrates Daphnia magna Long-term	NOELR 21/days: LL50 21/days:	2,6 mg/lit 10 mg/lit	Key study Exxon Biomedical Sciences, Inc., East Millstone, NJ 1995 Reliable without restrictions OECD Guideline 211		
Algae Short-term Selenastrum capricornutum	EL50 72/hours: EC50 96/hours: NOELR 72/hours:	3,1 mg/lit 3,7 mg/lit 0,5 mg/lit	Key study Exxon Biomedical Sciences, Inc., East Millstone, NJ 1995 Reliable without restrictions OECD Guideline 201		

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Endpoint	Resul	t	Comments
		Aquati	c toxicity
Fish	LC50 48/hours:	5,4 mg/lit	Support study
Short-term			CAS 86290-81-5
			Lockhart WL, Danell RW and Murray DAJ 1987
			Reliable with restrictions
			OECD Guideline 203
Fish	LL50 96/hours:	8.2	Key study
Short-term			CAS 64741-66-8
Pimephales promelas			Petroleum Product Stewardship Council (PPSC) 1995
			Reliable without restrictions
			Method ASTM ET29-88a
Fish	NOELR 14/days:	2,6 mg/lit	Support study
Long-term	LL50 14/days:	5.2	CAS 64741-55-5
Pimephales promelas			Springborn Laboratories, Inc. 1999
			Reliable with restrictions
			OECD Guideline 204
Micro-organisms	EC50 40/hours:	15,41	Key study
Tetrahymena pyriformis	mg/lit		Redman, A. et al. 2010
			Reliable with restrictions
			QSAR modelled data

12.2 Persistence and degradability

Abiotic degradability

Hydrolysis: Naphtha is resistant to hydrolysis due to a lack of a functional group that is hydrolytically reactive. Therefore,

this process will not contribute to a measurable loss of degradation of the substance in the environment.

Photolysis in the air: Endpoint not required by REACH

Photolysis in water and soil: Endpoint not required by REACH

Biotic degradability

Water / sediment / soil: The standard tests for this endpoint are not applicable to UVCB substances.

12.3 Bioaccumulative potential

The standard tests for this endpoint are not applicable to UVCB substances.

12.4 Mobility in soil

Koc absorption: The standard tests for this endpoint are not applicable to UVCB substances.

12.5 Results of PBT and vPvB assessment

Comparison with the criteria laid down in appendix XIII of the REACH Regulation.

Persistence evaluation: some hydrocarbon structures included in this category present P (persistent) or vP (very Persistent) characteristics.

Evaluation of bioaccumulation potential: the structure of most of the hydrocarbons included in this category DO NOT present vB (very Bioaccumulative) characteristics, although some components do present B (Bioaccumulative) characteristics.

Evaluation of toxicity: for the structures that showed P and B characteristics, the toxicity was evaluated but no relevant component satisfies the toxicity criteria with the exception of antracene which was confirmed to be a PBT. Since the antracene is included in concentrations < 0,1% the product is not PBT/vPvB.

12.6 Other adverse effects

Not included.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not discharge onto the ground, into sewers, culverts, or water courses.

For disposal of the waste derived from this product, including non depolluted empty containers, comply with Local Legislation.

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European Waste Catalogue Code: 13 07 03 (Ref: 2001/118/CE and Dir. of the Min. of the Environment 9/04/2002). The code indication only provides a general indication based in the original composition of the product and the intended uses).

The user (waste producer) is responsible for choosing the most adequate code on the basis of the effective use of the product, any alterations, and pollution. The product as is does not contain halogenated compounds.

Disposal of containers: Do not throw the containers away in the environment. Dispose of them according to local regulations.

Do not puncture, grind, weld, braze, burn, or incinerate the containers or empty drums that have not bee depolluted.

SECTION 14. TRANSPORT INFORMATION

14.1 UN Number

1203

14.2 UN proper shipping name

PETROL

14.3 Transport hazard class(es)

Road / rail transport (ADR/RID/ADN): Class 3

Classification code: F1

Danger labels: 3 + material dangerous for the environment

Danger identification number: 33 Sea transport (IMDG): Class 3

Air transport (IATA): Class 3, flammable liquid

Tunnel restriction code (ADR): D/E

14.4 Packing group

II, Label 3 + Environmental danger mark

14.5 Environmental hazards

Substances dangerous to the environment in terms of codes ADR, RID, ADN and IMDG.

14.6 Special precautions for user

Ensure material transfers are under containment or extract ventilation (E66).

14.7 Transport in bulk according to annex II of MARPOL and the IBC code

If you intend effecting bulk transportation, comply with appendix II of MARPOL 73/78 and the IBC code, where applicable.

SECTION 15. INFORMATION ON REGULATION

15.1 Safety, health and environmental regulations / legislation specifc for the substance or mixture

Authorisation in terms of the REACH Regulation (CE Regulation n° 1907/2006 and subsequent amendments and additions): Product not included in the list of extremely worrying substances (SVHC) subject to authorisation

Restrictions in terms of the REACH Regulation (CE Regulation n° 1907/2006 and subsequent amendments and additions): Substance subject to Restrictions in terms of Heading VIII (Appendix XVII, Appendix 2, point 28).

Other EU norms and national implementations:

Seveso Category (Dir 2012/18/UE Seveso III): appendix I, part 1.

For waste disposal see Local Legislation.

15.2 Chemical safety assessment

Chemical safety was evaluation.

SECTION 16. OTHER INFORMATION

List of pertinent phrases

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These phrases are given for information and do not necessarily correspond to the classification of the product.

H Hazard indications

H224: Highly flammable liquid and vapoursH225: Easily flammable liquid and vapours

H302: Harmful if swallowed

H304: Can be lethal in case of ingestion and penetration of the respiratory tracts

H315: Causes skin irritation

H319: Causes serious eye irritation
H336: Can cause drowsiness or dizziness
H340: Can cause genetic changes

H361d: Suspected to be harmful to foetuses
H361f: Suspected to be harmful to fertility

H372: Causes damage to organs in case of prolonged or repeated exposure
H373: Can cause damage to organs in case of prolonged or repeated exposure

H400 Very toxic to aquatic life

H411: Toxic for aquatic organisms with long-term effects

Indications on training:

Adequately train workers that will potentially be exposed to these substances, based on the contents of this safety data sheet.

Principal biological references and data sources

Registration Dossier

Legend for abbreviations and acronyms

ACGIH = American Conference of Governmental Industrial Hygienists

CSR = Report on Chemical Safety

DNEL = Derived Non-Effect Level

DMEL = Derived Minimum Effect Level

EC50 = Mean effective concentration

IC50 = Inhibition concentration, 50%

Klimisch = Evaluation criteria for the reliability of the method used.

LC50 = Lethal concentration, 50% LD50 = Mean lethal dosage

PNEC = Envisaged Non-Effect Concentration

n.a. = not applicable n.d. = not available

PBT = Persistent, Bioaccumulable, and Toxic Substance

SNC = Central Nervous System

STOT = Specific Toxicity for Organs Targeted

(STOT) RE = Repeated exposure (STOT) SE = Single exposure Key study = Most pertinent study

TLV®TWA = Threshold Limit Value – mean pondered over time
TLV®STEL = Threshold Limit Value - limit for short exposure time
UVCB = Substances of Unknown or Variable composition

vPvB = very Persistent and very Bioaccumulable

note P = Classification as a carcinogen or mutagen is not necessary if it can be shown that the substance contains a

percentage of benzene of less than 0,1 % by weight

If the substance is not classified as being carcinogenic, at least warning tips (P102) -P260-P262-P301 + P310-

P331 (table 3.1) or the S phrase (2-)23-24-62 (table 3.2) must appear.

Date of emission: 30/11/2010
Date of Revision 6: 18/12/2018

Reason for the revision: sect. 1 Product identifiers – Synonyms update

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APPENDIX 1

LIST OF USES IDENTIFIED

In relation to the petrol component

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Name of use identified	Sector	Usage sector SU	Process categories PROC	Environmental release categories ERC	Specific environmental release categories ERC
01- Production of the substance	Industrial (G26)	3,8, 9	1, 2, 3., 8a, 8b, 15	1,4, 0	ESVOC SpERC 1.1.v1
01b- Use as intermediate	Industrial	3,8, 9	1, 2, 3., 8a, 8b, 15	6a	ESVOC SpERC 6.1a.v1
01a- Distribution of the substance	Industrial	3	1, 2, 3., 8a, 8b, 15	1,2,3,4,5,6a,6b,6c,6 d,7	ESVOC SpERC 1.1b.v1
02- Formulation & (re)packing of substances and mixtures	Industrial	3,10	1, 2, 3., 8a, 8b, 15	2	ESVOC SpERC 2.2.v1
03a-Use in coatings	Industrial	3	1, 2, 3., 8a, 8b, 15	4	ESVOC SpERC 4.3a.v1
04a-Use in cleaning products	Industrial	3	1, 2, 3., 8a, 8b.	4	ESVOC SpERC 4.4a.v1
12a- Use as a fuel	Industrial	3	1, 2, 3., 8a, 8b, 16	7	ESVOC SpERC 7.12a.v1
12b- Use as a fuel	Professional	22	1, 2, 3., 8a, 8b, 16	9a,9b	ESVOC SpERC 9.12b.v1
12c- Use as a fuel	Consumer	21	13	9a,9b	ESVOC SpERC 9.12c.v1
19- Rubber production and processing	Industrial	3,10, 11	1,2,3, 8b,9,15	1,4,6d	ESVOC SpERC4.19.v1

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APPENDIX 2

EXPOSURE SCENARIOSRelated to petrol compounds, ETBE, MTBE, TAME, Ethanol

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1.	Use of cyclohexane and its mixtures as fuel	
2.	Formulation or re-packaging of Cyclohexane and its mixtures	



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PETROL

(Low boiling point naphtas containing between 0% and 1% benzene) 1. Production of the substance

Section 1			
Title			
Production of the substance			
Usage descriptors			
Sector of Use		3, 8, 9	
Process category		1, 2, 3, 8a, 8b, 15	
Environmental Release Category		1, 4	
Specific Environmental Release Category		ESVOC SpERC 1.1.v1	
Processes, Assignments, Covered Activities			
Processing of the substance or its use as a	process che	emical or extraction agent within closed or containment systems. It includes	
		erial transfer, storage, sampling, associated lab activities, maintenance and	
loading (included on boats / barges, tank w	agons on a	wheel or rail, and containers for bulk goods).	
Evaluation method			
See section 3.			
Section 2 Operative conditions and risk ma	nagement	measures	
Section 2.1 Workers'exposure control			
Product characteristics	ı		
Product physical state		apor pressure > 10 kPa in standard conditions.	
Substance concentration in the product	It covers a indicated)	percentage of substance in the product up to 100% (unless otherwise .	
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a	daily exposure up to 8 hours (unless otherwise indicated).	
Human factors not influenced by risk	n.a.		
management			
Other operating conditions affecting	-	tion is carried out at high temperatures (> 20 ° C above room temperature).	
exposure		the application of a suitable basic hygiene standards in the workplace.	
Exposure scenarios	Specific measures for risk management and operational conditions		
General measures (skin irritants)		ct skin contact with the product. Identify potential indirect contact areas kin. Wear protective gloves (tested according to EN374) if there is a	
	probabilit contamina contamina	y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / eposures and notifying any dermatological problems.	
General measures (carcinogenic agents)	probabilit contamin. contamin. limiting ex Consider dispersion dedicated systems a purge the limit acce activities to preven certain ex under saf managem measures	y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / sposures and notifying any dermatological problems. The sechnical progress and process updates (including automation) to eliminate its. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the and clean the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits at skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste the conditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control. Take into account the need for a risk-based health surveillance system.	
General measures (carcinogenic agents) General Exposure (closed systems) + with sampling General Exposure (Closed Systems) +	probabilit contamina contamina limiting ex Consider dispersion dedicated systems a purge the limit acce activities to preven certain ex under saf managem measures Manipula Sampling Wear pro	y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / exposures and notifying any dermatological problems. Execution progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the and clean the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits the skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste the conditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control	

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General Exposure (closed systems) +	Manipulate the substance in a closed system.					
Discontinuous process	Make sure the operation is done outside.					
Lab activities	Handle only under a chemical hood or use equivalent methods to minimize exposure					
Lab activities	hazards.	ous to minimize exposure				
Bulk products transfer	Ensure that the transfer of the material takes place in conta	inment or with extract				
Bulk products transfer	ventilation.					
Cleaning and maintenance of equipment	Drain and purge the system before opening or maintaining the equipment.					
cleaning and maintenance or equipment	Store drains in sealed containers until disposal or subsequent recycling.					
	Immediately remove spills.					
	Wear chemical protection gloves (conforming to EN374	4), together with a basic				
	training course.					
Storage	Make sure the operation is done outside.					
	Store the substance inside a closed system.					
Section 2.2 Envirnomental exposure contr						
Product characteristics						
The substance is a UVCB complex. Mostly h	nydrophobic					
Quantity used	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
EU tons fraction used locally		0.1				
Regional tons (tons / year)		1.87e7				
Regional tons (tons / year) Regional tons fraction used locally		0.03				
Site annual tons (tons/year)		6.0e5				
Maximum site daily tons (kg/day)		2.0e6				
Frequency and duration of use		2.000				
Continuous release						
		300				
Days of emission (days/year) Environmental factors not influenced by r	isk managamant	300				
Local dilution factor in fresh water	isk management	10				
	10					
Local dilution factor in sea water		100				
Other operating conditions affecting envir		0.05				
•	s (initial release before the application of risk management	0.05				
measures)	/· · · · · · · · · · · · · · · · · · ·	0.000				
-	e process (initial release before the application of risk	0.003				
management measures) Fraction released in the ground by the process (initial release before the application of risk 0.0001						
	0.0001					
management measures)						
Technical measures and conditions at the						
	rvative process emissions estimates are used					
	reduce or limit discharges, emissions into the air and release	es into the ground				
Prevent the release of undissolved substan						
Environmental risk is related to the indirec	t exposure of humans by ingestion.					
Sewage treatment on site is required.		T a a a				
Handle emissions in such a way as to ensur		99.0				
-	starting the unloading operation) to ensure the required	95.2				
removal efficiency ≥ (%):						
_	r treatment plant, ensure the effective removal required on	80.4				
site ≥ (%)						
Organizational measures to prevent / limi						
	the treatment of industrial waters on natural soils.					
	tment must be incinerated, kept under containment or treate	d (UMS3)				
Conditions and measures for the municipa		T a= -				
Estimated removal of waste water by mea		95.5				
	after adoption of RMMs in the site and offsite (urban	99.1				
treatment plant) (%)						
Maximum allowed tons of site (MSafe) on the basis of the next release after total waste removal 2.0e6						
(kg/g).						
Supposed flow for the urban wastewater treatment plant (m ³ / d) 10000						
	cternal treatment of waste for disposal					

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During production, no waste is generated on the substance, to be disposed of.

Conditions and measures for the external recovery of waste

During production, no rejection of the substance is to be recovered.

Section 3 Extimation of exposure

3.1 Health

For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the ECETOC TRA method has been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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2. Use of the Substance as Intermediate

Section 1					
Title					
Use of the Substance as Intermediate					
Usage descriptors					
Sector of Use		3, 8, 9			
Process category		1, 2, 3, 8a, 8b, 15			
Environmental Release Category		6a			
Specific Environmental Release Category		ESVOC SpERC 6.1a.v1			
Processes, Assignments, Covered Activitie	•	LSVOC SPENC 0.18.VI			
		d or containment systems (not in strictly controlled conditions). Includes			
		ions, material transfer, storage, sampling, associated laboratory activities,			
maintenance and loading (on boats / barge					
Evaluation method	s, talik wag	ons of fair and containers for bulk goods).			
See section 3.					

Section 2 Operative conditions and risk ma	anagement	measures			
Section 2.1 Workers'exposure control					
Product characteristics	12	- Albanian and Alb			
Product physical state	-	apor pressure > 10 kPa in standard conditions.			
Substance concentration in the product	It covers a indicated)	a percentage of substance in the product up to 100% (unless otherwise).			
Quantity used	n.a.				
Frequency and duration of use/exposure	It covers a	a daily exposure up to 8 hours (unless otherwise indicated).			
Human factors not influenced by risk	n.a.				
management					
Other operating conditions affecting	The opera	ation is carried out at high temperatures (> 20 ° C above room temperature).			
exposure	It requires	s the application of a suitable basic hygiene standards in the workplace.			
Caratteristiche dello scenario	Misure specifiche per la gestione dei rischi e condizioni operative				
General measures (skin irritants)	Avoid direct skin contact with the product. Identify potential indirect contact areas				
	with the skin. Wear protective gloves (tested according to EN374) if there is a				
	probabilit	y that the substance will come into contact with your hands. Eliminate			
	contamin	ation / spillage as soon as they occur. Immediately remove any			
	contamin	ation with the skin. Provide basic training to personnel aimed at preventing /			
	limiting ex	xposures and notifying any dermatological problems.			
General measures (carcinogenic agents)	Consider	technical progress and process updates (including automation) to eliminate			
	dispersion	ns. Limit exposure by taking measurements such as closed systems,			
	dedicated	equipment and special suction / local exhaust ventilation systems. Drain the			
		and clean the transfer lines before interrupting the containment. Clean /			
		e equipment, if possible, before maintenance. Where exposure is available:			
		ss to authorized personnel only, provide operators with specific training on			
	activities	and operations to minimize exposure risk, wear gloves and protective suits			
	•	t skin contamination , use a respiratory protective device when required for			
		sposure scenarios, immediately discard any leaks and dispose of the waste			
	under saf	e conditions. Ensure the adoption of safe work systems or equivalent risk			
	managem	ent solutions. Inspect, monitor, and maintain all devices and control			
	measures	. Take into account the need for a risk-based health surveillance system.			
General Exposure (closed systems) + with	Manipulate the substance in a closed system.				
sampling		via a closed loop or a system designed to prevent exposure.			
		tective gloves conforming to EN374.			
General Exposure (closed systems)	Manipula	te the substance in a closed system.			
	Make sure	e the operation is done outside.			
Storage	Make sure	e the operation is done outside.			
Store the substance inside a closed system.					
Lab activities		nly under a chemical hood or use equivalent methods to minimize exposure			
	hazards.				

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Bulk products transfer	Ensure that the transfer of the material takes place in conta	inment or with extract					
ventilation.							
Cleaning and maintenance of equipment	Drain and purge the system before opening or maintaining the equipment. Store drains in sealed containers until disposal or subsequent recycling. Immediately remove spills.						
Wear chemical protection gloves (conforming to EN374), together with a basic training course.							
Section 2.2 Envirnomental exposure contr							
Product characteristics							
The substance is a UVCB complex. Mostly h	ydrophobic						
Quantity used	,						
EU tons fraction used locally		0.1					
Regional tons (tons / year)		2.21e6					
Regional tons fraction used locally		0.0068					
Site annual tons (tons/year)		1.5e4					
Maximum site daily tons (kg/day)		5.0e4					
Frequency and duration of use							
Continuous release							
Days of emission (days/year)		300					
Environmental factors not influenced by ri	sk management						
Local dilution factor in fresh water		10					
Local dilution factor in sea water		100					
Other operating conditions affecting envir	onmental exposure						
Fraction released in the air by the process measures)	s (initial release before the application of risk management	0.025					
Fraction released in wastewater by the management measures)	Fraction released in wastewater by the process (initial release before the application of risk 0.003						
Fraction released in the ground by the process (initial release before the application of risk 0.001							
management measures) Technical measures and conditions at the process level (source) to prevent releases							
	rvative process emissions estimates are used						
	reduce or limit discharges, emissions into the air and release	s into the ground					
	exposure is induced by the freshwater sediment compartmen	t.					
In case of drainage to a sewage treatment plant, no treatment is required.							
Handle emissions in such a way as to ensur		80					
Handle the waste water on site (before starting the unloading operation) to ensure the required removal efficiency ≥ (%):							
In case of drainage to an urban wastewater treatment plant, ensure the effective removal required on site ≥ (%)							
Organizational measures to prevent / limit	t the release from the site						
Do not distribute the sludge generated by t	he treatment of industrial waters on natural soils.						
	ment must be incinerated, kept under containment or treated	t					
Conditions and measures for the municipa							
Estimated removal of waste water by mean		95.5					
Total efficiency of wastewater removal, after adoption of RMMs in the site and offsite (urban treatment plant) (%)							
Maximum allowed tons of site (MSafe) on the basis of the next release after total waste removal (kg/g).							
Supposed flow for the urban wastewater treatment plant (m³ / d) 2000							
Conditions and measures related to the ex							
During production, no waste is generated of	·						
Conditions and measures for the external							
During production, no rejection of the substance is to be recovered.							
Section 3 Extimation of exposure							
3.1 Health							
For the purpose of assessing the exposure	For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the ECETOC TRA method has						

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been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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3. Distribution of substance

Section 1			
Title			
Distribution of substance			
Usage descriptors			
Sector of Use		3	
Process category		1, 2, 3, 8a, 8b, 15	
Environmental Release Category		1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7	
Specific Environmental Release Category		ESVOC SpERC 1.1b.v1	
Processes, Assignments, Covered Activitie	s		
		r rail tank wagons and IBCs) inside closed or containment systems, including	
		ng, maintenance and associated lab activities.	
Evaluation method	6-,	·g/	
See section 3.			
Section 2 Operative conditions and risk ma	anagement	measures	
Section 2.1 Workers'exposure control			
Product characteristics			
Product physical state	Liquid v	apor pressure > 10 kPa in standard conditions.	
		a percentage of substance in the product up to 100% (unless otherwise	
Substance concentration in the product	indicated)		
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a	a daily exposure up to 8 hours (unless otherwise indicated).	
Human factors not influenced by risk	n.a.		
management			
Other operating conditions affecting		s the use of the product at a temperature not exceeding 20 ° C compared to	
exposure	room tem	perature, unless otherwise specified.	
	It requires	s the application of a suitable basic hygiene standards in the workplace.	
Exposure scenarios	Specific measures for risk management and operational conditions		
General measures (skin irritants)	Avoid direct skin contact with the product. Identify potential indirect contact areas with the skin. Wear protective gloves (tested according to EN374) if there is a probability that the substance will come into contact with your hands. Eliminate contamination / spillage as soon as they occur. Immediately remove any contamination with the skin. Provide basic training to personnel aimed at preventing / limiting exposures and notifying any dermatological problems.		
General measures (carcinogenic agents)	Consider technical progress and process updates (including automation) to eliminate dispersions. Limit exposure by taking measurements such as closed systems, dedicated equipment and special suction / local exhaust ventilation systems. Drain the systems and clean the transfer lines before interrupting the containment. Clean / purge the equipment, if possible, before maintenance. Where exposure is available: limit access to authorized personnel only, provide operators with specific training on activities and operations to minimize exposure risk, wear gloves and protective suits to prevent skin contamination , use a respiratory protective device when required for certain exposure scenarios, immediately discard any leaks and dispose of the waste under safe conditions. Ensure the adoption of safe work systems or equivalent risk management solutions. Inspect, monitor, and maintain all devices and control measures. Take into account the need for a risk-based health surveillance system.		
General Exposure (closed systems) + with sampling	Manipulate the substance in a closed system. Sampling via a closed loop or a system designed to prevent exposure. Wear protective gloves conforming to EN374.		
General Exposure (closed systems) + outside		te the substance in a closed system.	
Sampling during the process.		via a closed loop or a system designed to prevent exposure.	
Lab activities	Handle only under a chemical hood or use equivalent methods to minimize exposure hazards.		
Closed loading and unloading of bulk	Ensure th	at the transfer of the material takes place in containment or with extract	

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products	ventilation.						
•		the equipment					
Cleaning and maintenance of equipment	of equipment Drain and purge the system before opening or maintaining the equipment. Store drains in sealed containers until disposal or subsequent recycling.						
	Immediately remove spills.	it recycling.					
	Wear chemical protection gloves (conforming to EN374	1) together with a hasic					
	training course.	+), together with a basic					
Storage	Make sure the operation is done outside.						
Storage	Store the substance inside a closed system.						
Section 2.2 Envirnomental exposure control							
Product characteristics	<u> </u>						
The substance is a UVCB complex. Mostly h	nydrophobic						
Quantity used	учторновіс						
EU tons fraction used locally		0.1					
Regional tons (tons / year)		1.87e7					
		0.002					
Regional tons fraction used locally							
Site annual tons (tons/year)		3.75e4					
Maximum site daily tons (kg/day)		1.2e5					
Frequency and duration of use							
Continuous release		200					
Days of emission (days/year)		300					
Environmental factors not influenced by ri	sk management	Γ					
Local dilution factor in fresh water		10					
Local dilution factor in sea water		100					
Other operating conditions affecting envir		T					
Fraction released in the air by the process measures)	s (initial release before the application of risk management	0.001					
Fraction released in wastewater by the process (initial release before the application of risk 0.00001							
management measures) Fraction released in the ground by the process (initial release before the application of risk 0.00001							
management measures)							
Technical measures and conditions at the process level (source) to prevent releases							
	vative process emissions estimates are used						
	reduce or limit discharges, emissions into the air and release	es into the ground					
Environmental risk is related to the indirect		.s into the ground					
In case of drainage to a sewage treatment plant, no treatment is required. Handle emissions in such a way as to ensure a typical removal efficiency of (%). 90							
·	12						
removal efficiency ≥ (%):							
In case of drainage to an urban wastewate site ≥ (%)	In case of drainage to an urban wastewater treatment plant, ensure the effective removal required on 0 site ≥ (%)						
Organizational measures to prevent / limit	t the release from the site						
Do not distribute the sludge generated by t	he treatment of industrial waters on natural soils.						
	ment must be incinerated, kept under containment or treated	b					
Conditions and measures for the municipa	l wastewater treatment plant						
Estimated removal of waste water by mear	ns of an urban treatment plant (%).	95.5					
Total efficiency of wastewater removal,	95.5						
treatment plant) (%)							
Maximum allowed tons of site (MSafe) on the basis of the next release after total waste removal 1.1e6							
(kg/g).							
Supposed flow for the urban wastewater tr	2000						
Conditions and measures related to the ex		•					
	ste must comply with applicable local and / or national legislate	tion					
Conditions and measures for the external							
Waste collection and recycling must comply with applicable local and / or national legislation							
Section 3 Extimation of exposure							
3.1 Health							
For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the ECETOC TRA method has							
	1 /						

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been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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4. Formulation and (re) packaging of substances and mixtures

Section 1				
Title				
Formulation and (re) packaging of substances and mixtures				
Usage descriptors				
Sector of Use		3, 10		
Process category		1, 2, 3, 8a, 8b, 15		
Environmental Release Category		2		
Specific Environmental Release Category		ESVOC SpERC 2.2.v1		
Processes, Assignments, Covered Activitie	ς	23700 SPERIO 2.2.172		
		nuous and discontinuous operations within closed or containment systems,		
		of material, mixing, maintenance, sampling and associated laboratory		
activities .	,,	or material, mining, manifestance, sampling and associated laborator ,		
Evaluation method				
See section 3.				
Section 2 Operative conditions and risk ma	nagement	mogenros		
Section 2.1 Workers'exposure control	anagement	illeasules		
Product Characteristics				
	liannial no	and an anaday and the standard and ditions		
Product physical state	1	apor pressure > 10 kPa in standard conditions.		
Substance concentration in the product	indicated	a percentage of substance in the product up to 100% (unless otherwise).		
Quantity used	n.a.			
Frequency and duration of use/exposure	It covers a	a daily exposure up to 8 hours (unless otherwise indicated).		
Human factors not influenced by risk	n.a.			
management				
Other operating conditions affecting		s the use of the product at a temperature not exceeding 20 ° C compared to		
exposure		perature, unless otherwise specified.		
		s the application of a suitable basic hygiene standards in the workplace.		
Caratteristiche dello scenario	Misure specifiche per la gestione dei rischi e condizioni operative			
General measures (skin irritants)		ect skin contact with the product. Identify potential indirect contact areas		
		kin. Wear protective gloves (tested according to EN374) if there is a		
		y that the substance will come into contact with your hands. Eliminate		
		ation / spillage as soon as they occur. Immediately remove any		
		ation with the skin. Provide basic training to personnel aimed at preventing /		
		xposures and notifying any dermatological problems.		
General measures (carcinogenic agents)		technical progress and process updates (including automation) to eliminate		
		ns. Limit exposure by taking measurements such as closed systems,		
		equipment and special suction / local exhaust ventilation systems. Drain the		
		and clean the transfer lines before interrupting the containment. Clean /		
		equipment, if possible, before maintenance. Where exposure is available:		
		ss to authorized personnel only, provide operators with specific training on		
		and operations to minimize exposure risk, wear gloves and protective suits		
		t skin contamination , use a respiratory protective device when required for		
		sposure scenarios, immediately discard any leaks and dispose of the waste		
		under safe conditions. Ensure the adoption of safe work systems or equivalent risk		
		ent solutions. Inspect, monitor, and maintain all devices and control		
Consul Function (al. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		. Take into account the need for a risk-based health surveillance system.		
General Exposure (closed systems) + with		te the substance in a closed system.		
		via a closed loop or a system designed to prevent exposure.		
Companial Functions (all and a sections)		tective gloves conforming to EN374.		
General Exposure (closed systems) + Manipulate the substance in a closed system. outside .				
Sampling during the process.	Sampling	via a closed loop or a system designed to prevent exposure.		
Lab activities		nly under a chemical hood or use equivalent methods to minimize exposure		
	hazards.			

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Closed loading and unloading of hulls	Encure that the transfer of the material takes place in containment or with	hovtract			
Closed loading and unloading of bulk products	Ensure that the transfer of the material takes place in containment or wit ventilation.	ii extidCl			
Drums/lots transfer	Ensure that the transfer of the material takes place in containment or extract ventilation.				
Cleaning and maintenance of equipment	Drain and purge the system before opening or maintaining the equipmen Store drains in sealed containers until disposal or subsequent recycling. Immediately remove spills. Wear chemical protection gloves (conforming to EN374), together				
	training course.				
Storage	Make sure the operation is done outside. Store the substance inside a closed system.				
Section 2.2 Envirnomental exposure contr	•				
Product characteristics	oi e e e e e e e e e e e e e e e e e e e				
The substance is a UVCB complex. Mostly h	nydronhohic				
Quantity used	учторнова				
EU tons fraction used locally		0.1			
Regional tons (tons / year)		1.65e7			
Regional tons fraction used locally		0.0018			
Site annual tons (tons/year)		3.0e4			
Maximum site daily tons (kg/day)		1.0e5			
Frequency and duration of use					
Continuous release					
Days of emission (days/year)		300			
Environmental factors not influenced by r	isk management				
Local dilution factor in fresh water		10			
Local dilution factor in sea water		100			
Other operating conditions affecting envir	onmental exposure				
Fraction released in the air by the process	(initial release before the application of risk management measures)	0.025			
	cess (initial release before the application of risk management measures)	0.002			
Fraction released in the ground by the prod	cess (initial release before the application of risk management measures)	0.0001			
Technical measures and conditions at the					
	rvative process emissions estimates are used				
	reduce or limit discharges, emissions into the air and releases into the gro	ound			
Environmental risk is related to the indirect	· ·				
In case of drainage to a sewage treatment		T -			
Handle emissions in such a way as to ensur		56.5			
(%):	rting the unloading operation) to ensure the required removal efficiency ≥	97.4			
In case of drainage to an urban wastewate	r treatment plant, ensure the effective removal required on site ≥ (%)	0			
Organizational measures to prevent / limi					
	the treatment of industrial waters on natural soils.				
	tment must be incinerated, kept under containment or treated				
Conditions and measures for the municipa		T			
Estimated removal of waste water by mean	· · · ·	95.5			
	ter adoption of RMMs in the site and offsite (urban treatment plant) (%)	95.5			
	the basis of the next release after total waste removal (kg/g).	1.0e5			
Supposed flow for the urban wastewater to	· · · ·	2000			
Conditions and measures related to the ex	·				
Conditions and measures for the external	ste must comply with applicable local and / or national legislation				
	y with applicable local and / or national legislation				
Section 3 Extimation of exposure	y with applicable local and / or hational legislation				
3.1 Health					
	level at the workplace, where not expressly indicated, the ECETOC TRA met	hod has			
been used.	never at the workplace, where not expressly malcated, the Lective TRA met	nou nas			
3.2 Environment					
ine Hydrocarbon Block Method (HBM) wa	s used to calculate the environmental exposure with the Petrorisk model.				

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Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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5. Use in coatings

Section 1				
Title				
Use in coatings				
Usage descriptors				
Sector of Use		3		
Process category		1, 2, 3, 8a, 8b, 15		
Environmental Release Category		4		
Specific Environmental Release Category		ESVOC SpERC 4.3a.v1		
Processes, Assignments, Covered Activities	s	·		
It covers use in coatings (paints, inks, adhes	sives, etc.) in and transf	n closed or containment systems, including accidental exposure during use er of bulk products or seeds -fusion, application and film-forming activities), boratory activities.		
See section 3.				
	nagement	measures		
Section 2 Operative conditions and risk management measures Section 2.1 Workers' exposure control				
Product Characteristics				
Product physical state	Liquid vanor pressure > 10 kPa in standard conditions			
	Liquid, vapor pressure > 10 kPa in standard conditions.			
Substance concentration in the product	It covers a percentage of substance in the product up to 100% (unless otherwise indicated).			
Quantity used	n.a.			
Frequency and duration of use/exposure	It covers a daily exposure up to 8 hours (unless otherwise indicated).			
Human factors not influenced by risk	n.a.			
management				
Other operating conditions affecting		s the use of the product at a temperature not exceeding 20 ° C compared to		
exposure		perature, unless otherwise specified.		
	It requires the application of a suitable basic hygiene standards in the workplace.			
Exposure scenarios	Specific measures for risk management and operational conditions			
General measures (skin irritants)	with the s probabilit contamina contamina	ect skin contact with the product. Identify potential indirect contact areas kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / eposures and notifying any dermatological problems.		
General measures (carcinogenic agents)	Consider technical progress and process updates (including automation) to eliminate dispersions. Limit exposure by taking measurements such as closed systems, dedicated equipment and special suction / local exhaust ventilation systems. Drain the systems and clean the transfer lines before interrupting the containment. Clean / purge the equipment, if possible, before maintenance. Where exposure is available: limit access to authorized personnel only, provide operators with specific training on activities and operations to minimize exposure risk, wear gloves and protective suits to prevent skin contamination , use a respiratory protective device when required for certain exposure scenarios, immediately discard any leaks and dispose of the waste under safe conditions. Ensure the adoption of safe work systems or equivalent risk management solutions. Inspect, monitor, and maintain all devices and control measures. Take into account the need for a risk-based health surveillance system. Manipulate the substance in a closed system.			
Film formation - accelerated drying, drying and other technologies	Ensure and through introduce	n adequate standard of general ventilation. Natural ventilation is done doors, windows, etc. In controlled ventilation environments, the air is d or removed by an electric vacuum cleaner.		
General Exposure (closed system)	Ensure an through d	te the substance in a closed system. adequate standard of general ventilation. Natural ventilation is done oors, windows, etc. In controlled ventilation environments, the air is d or removed by an electric vacuum cleaner.		

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Dura di cata tura conform	Francisco Albart Albart Association of Albart Association and	tale and an at		
Product transfer	Ensure that the transfer of the material takes place in containment or ith extrac ventilation.			
Lab activities	Handle only under a chemical hood or use equivalent methods to minimize exposure hazards.			
Cleaning and maintenance of equipment	Drain and purge the system before opening or maintaining the equipment.			
	Store drains in sealed containers until disposal or subsequent recycling.			
	Immediately remove spills.			
	Wear chemical protection gloves (conforming to EN374), together with a basic			
Storage	training course. Make sure the operation is done outside.			
Storage	Store the substance inside a closed system.			
Section 2.2 Envirnomental exposure contro				
Product characteristics				
The substance is a UVCB complex. Mostly h	ydrophobic			
Quantity used		1		
EU tons fraction used locally				
Regional tons (tons / year)				
Regional tons fraction used locally				
Site annual tons (tons/year)				
Maximum site daily tons (kg/day) 2.1e4				
Frequency and duration of use Continuous release				
Days of emission (days/year) 300 Environmental factors not influenced by risk management				
Local dilution factor in fresh water 10				
Local dilution factor in resh water				
Other operating conditions affecting envir	onmental exposure	100		
	initial release before the application of risk management measures)	0.98		
Fraction released in wastewater by the process (initial release before the application of risk management measures)				
Fraction released in wastewater by the process (initial release before the application of risk management measures) O.007 Fraction released in the ground by the process (initial release before the application of risk management measures) 0				
Technical measures and conditions at the				
Procedures vary from site to site, so conser	vative process emissions estimates are used			
Site technical conditions and measures to	reduce or limit discharges, emissions into the air and releases into the grou	nd		
Prevent the release of undissolved substan				
Environmental risk is related to the indirect	, -			
In case of drainage to a sewage treatment		94.1		
Handle emissions in such a way as to ensure a typical removal efficiency of (%).				
Handle the waste water on site (before starting the unloading operation) to ensure the required removal efficiency ≥ (%):				
In case of drainage to an urban wastewater treatment plant, ensure the effective removal required on site ≥ (%)				
Organizational measures to prevent / limit				
	he treatment of industrial waters on natural soils.			
	ment must be incinerated, kept under containment or treated			
Conditions and measures for the municipa		95.5		
Estimated removal of waste water by means of an urban treatment plant (%).				
Total efficiency of wastewater removal, after adoption of RMMs in the site and offsite (urban treatment plant) (%)				
Maximum allowed tons of site (MSafe) on the basis of the next release after total waste removal (kg/g). Supposed flow for the urban wastewater treatment plant (m³ / d)				
Conditions and measures related to the ex		2000		
	te must comply with applicable local and / or national legislation			
Conditions and measures for the external				
	y with applicable local and / or national legislation			
Section 3 Extimation of exposure	11			
3.1 Health				
	evel at the workplace, where not expressly indicated, the ECETOC TRA metho	od has		
been used.				
3.2 Environment				

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The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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6. Use in cleaning products

Section 1			
Title			
Use in cleaning products (GEST4_I)			
Usage descriptors			
Sector of Use	3		
Process category		1, 2, 3, 8a, 8b	
Environmental Release Category		4	
Specific Environmental Release Category		ESVOC SpERC 4.4a.v1	
Processes, Assignments, Covered Activities			
·	•	side closed or containment systems, including accidental exposures during	
	dilution in	the preparatory phase and cleaning activities, as well as cleaning and	
maintenance of the equipment.			
Evaluation method			
See section 3.			
Section 2 Operative conditions and risk ma	nagement	measures	
Section 2.1 Workers' exposure control			
Product Characteristics			
Product physical state	Liquid, va	por pressure > 10 kPa in standard conditions.	
Substance concentration in the product	It covers a indicated)	percentage of substance in the product up to 100% (unless otherwise .	
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a	daily exposure up to 8 hours (unless otherwise indicated).	
Human factors not influenced by risk	n.a.		
management			
Other operating conditions affecting	It requires	the use of the product at a temperature not exceeding 20 ° C compared to	
exposure		perature, unless otherwise specified.	
	It requires	the application of a suitable basic hygiene standards in the workplace.	
Exposure scenarios	Specific m	easures for risk management and operational conditions	
General measures (skin irritants)			
	with the s probability contamination	ct skin contact with the product. Identify potential indirect contact areas kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / eposures and notifying any dermatological problems.	
General measures (carcinogenic agents)	with the s probabiliticontamina contamina limiting ex Consider to dispersion dedicated systems a purge the limit acce activities a to preven certain ex under saf managem	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing /	
General measures (carcinogenic agents) Bulk products transfer	with the s probability contaminate contaminate limiting ex Consider to dispersion dedicated systems as purge the limit acce activities at to preven certain ex under saf managem measures Ensure the ventilation	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / posures and notifying any dermatological problems. Electrical progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the indicted the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits at skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste acconditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control Take into account the need for a risk-based health surveillance system. at the transfer of the material takes place in containment or extract	
General measures (carcinogenic agents) Bulk products transfer Use in systems under containment,	with the s probability contaminate contaminate limiting ex Consider of dispersion dedicated systems as purge the limit acce activities of to preven certain ex under saf managem measures. Ensure the ventilation Manipulat	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / posures and notifying any dermatological problems. The chical progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the indicted the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits at skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste acconditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control. Take into account the need for a risk-based health surveillance system. Take into account the need for a risk-based health surveillance system.	
General measures (carcinogenic agents) Bulk products transfer Use in systems under containment, Automated process with closed (semi)	with the s probability contaminate contaminate limiting ex Consider of dispersion dedicated systems as purge the limit acce activities of to preven certain ex under saf managem measures. Ensure the ventilation Manipulat	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / posures and notifying any dermatological problems. Electrical progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the indicted the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits at skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste acconditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control Take into account the need for a risk-based health surveillance system. at the transfer of the material takes place in containment or extract	
Bulk products transfer Use in systems under containment, Automated process with closed (semi) systems.	with the s probability contamina contamina contamina limiting ex Consider of dispersion dedicated systems a purge the limit acce activities of to preven certain ex under saf managem measures Ensure that ventilation Manipulat	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / posures and notifying any dermatological problems. The progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the indicate the transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: is to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits it skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste in conditions. Ensure the adoption of safe work systems or equivalent risk ent solutions. Inspect, monitor, and maintain all devices and control Take into account the need for a risk-based health surveillance system. The transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extra	
General measures (carcinogenic agents) Bulk products transfer Use in systems under containment, Automated process with closed (semi)	with the s probability contaminate contaminate contaminate limiting ex Consider to dispersion dedicated systems as purge the limit acce activities activit	kin. Wear protective gloves (tested according to EN374) if there is a y that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / reposures and notifying any dermatological problems. The echnical progress and process updates (including automation) to eliminate is. Limit exposure by taking measurements such as closed systems, equipment and special suction / local exhaust ventilation systems. Drain the indicted that transfer lines before interrupting the containment. Clean / equipment, if possible, before maintenance. Where exposure is available: as to authorized personnel only, provide operators with specific training on and operations to minimize exposure risk, wear gloves and protective suits at skin contamination, use a respiratory protective device when required for posure scenarios, immediately discard any leaks and dispose of the waste acconditions. Ensure the adoption of safe work systems or equivalent risk the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment or extract in the transfer of the material takes place in containment	

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	Store drains in sealed containers until disposal or subsequent recycling. Immediately remove spills. Wear chemical protection gloves (conforming to EN374), together with a basic training course.		
Storage	Store the substance inside a closed system.		
Section 2.2 Envirnomental exposure control	ol		
Product characteristics			
The substance is a UVCB complex. Mostly h	ydrophobic		
Quantity used			
EU tons fraction used locally		0.1	
Regional tons (tons / year)		5.12e2	
Regional tons fraction used locally		0.2	
Site annual tons (tons/year)		1.0e2	
Maximum site daily tons (kg/day)		5.0e3	
Frequency and duration of use			
Continuous release			
Days of emission (days/year)		20	
Environmental factors not influenced by ri	sk management		
Local dilution factor in fresh water		10	
Local dilution factor in sea water		100	
Other operating conditions affecting envir	onmental exposure		
Fraction released in the air by the process measures)	s (initial release before the application of risk management	1.0	
Fraction released in wastewater by the management measures)	e process (initial release before the application of risk	0.00003	
	e process (initial release before the application of risk	0	
Technical measures and conditions at the	nrocess level (source) to prevent releases	<u> </u>	
	vative process emissions estimates are used		
	reduce or limit discharges, emissions into the air and release	os into the ground	
Prevent the release of undissolved substant		is into the ground	
Environmental risk is related to the indirect			
In case of drainage to a sewage treatment			
Handle emissions in such a way as to ensur		70	
	starting the unloading operation) to ensure the required	4.4	
	r treatment plant, ensure the effective removal required on	0	
Organizational measures to prevent / limit the release from the site			
	he treatment of industrial waters on natural soils.		
	ment must be incinerated, kept under containment or treated	d.	
Conditions and measures for the municipal	·		
Estimated removal of waste water by mean	95.5		
Total efficiency of wastewater removal,	95.5		
treatment plant) (%) Maximum allowed tons of site (MSafe) on t	2.9e4		
(kg/g). Supposed flow for the urban wastewater treatment plant (m³ / d) 2000			
	Conditions and measures related to the external treatment of waste for disposal		
	ste must comply with applicable local and / or national legislat	ion	
Conditions and measures for the external		IUII	
	y with applicable local and / or national legislation		
Section 3 Extimation of exposure	y with applicable local and / or flational legislation		
3.1 Health			
	evel at the workplace, where not expressly indicated, the ECE	TOC TRA method has	
3.2 Environment			
J.L LIIVII UIIIIIEIIL			

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The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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7. Use as fuel - Industrial sector

Section 1		
Title		
Use as fuel		
Usage descriptors		
Sector of Use		3
Process category		1, 2, 3, 8a, 8b, 16
Environmental Release Category		7
Specific Environmental Release Category		ESVOC SpERC 7.12a.v1
Processes, Assignments, Covered Activitie	s	
		ponent) within closed or containment systems, including accidental
		nsfer, use, maintenance of equipment and handling of products waste.
Evaluation method		
See section 3.		
Section 2 Operative conditions and risk ma	anagement	measures
Section 2.1 Workers'exposure control		
Product Characteristics		
Product physical state	Liquid, v	apor pressure > 10 kPa in standard conditions.
Substance concentration in the product	-	a percentage of substance in the product up to 100% (unless otherwise
•	indicated	
Quantity used	n.a.	
Frequency and duration of use/exposure	It covers a	a daily exposure up to 8 hours (unless otherwise indicated).
Human factors not influenced by risk	n.a.	
management		
Other operating conditions affecting	It require	s the use of the product at a temperature not exceeding 20 ° C compared to
exposure		perature, unless otherwise specified.
	It require	s the application of a suitable basic hygiene standards in the workplace.
Exposure scenarios		neasures for risk management and operational conditions
General measures (skin irritants)	with the s probabilit contamin contamin	ect skin contact with the product. Identify potential indirect contact areas skin. Wear protective gloves (tested according to EN374) if there is a sty that the substance will come into contact with your hands. Eliminate ation / spillage as soon as they occur. Immediately remove any ation with the skin. Provide basic training to personnel aimed at preventing / exposures and notifying any dermatological problems.
General measures (carcinogenic agents)	Consider technical progress and process updates (including automation) to eliminate dispersions. Limit exposure by taking measurements such as closed systems, dedicated equipment and special suction / local exhaust ventilation systems. Drain the systems and clean the transfer lines before interrupting the containment. Clean / purge the equipment, if possible, before maintenance. Where exposure is available: limit access to authorized personnel only, provide operators with specific training on activities and operations to minimize exposure risk, wear gloves and protective suits to prevent skin contamination , use a respiratory protective device when required for certain exposure scenarios, immediately discard any leaks and dispose of the waste under safe conditions. Ensure the adoption of safe work systems or equivalent risk management solutions. Inspect, monitor, and maintain all devices and control measures. Take into account the need for a risk-based health surveillance system.	
Closed unloading of bulk products	Ensure that the transfer of the material takes place in containment or with extract ventilation.	
Drums/lots transfer	Ensure th ventilatio	at the transfer of the material takes place in containment or with extract n.
Refueling	Ensure the ventilation	nat the transfer of the material takes place in containment or with extract n.
Aircraft supply	Ensure the ventilation	at the transfer of the material takes place in containment or with extract n.
General exposure (closed system)	Manipula	te the substance in a closed system.

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	Ensure an adequate standard of general ventilation Natural ventila	tion is done			
	Ensure an adequate standard of general ventilation. Natural ventilation is done				
	through doors, windows, etc. In controlled ventilation environments, the air is introduced or removed by an electric vacuum cleaner.				
Harris final (along dispersions)	Manipulate the substance in a closed system.				
Use as a fuel (closed system)	Manipulate the substance in a closed system.				
Cleaning and maintenance of equipment	Drain the system before opening or maintaining the equipment.				
-	Store drains in sealed containers until disposal or subsequent recycling. Immediately				
	remove spills. Ensure an adequate standard of general ventilation. Natural ventilation				
	is done through doors, windows, etc. In controlled ventilation environme				
	introduced or removed by an electric vacuum cleaner. Wear chemical protect				
	gloves (conforming to EN374), together with a basic training course.	·			
Storage	Store the substance inside a closed system.				
	Ensure an adequate standard of general ventilation. Natural ventila				
	through doors, windows, etc. In controlled ventilation environment	s, the air is			
	introduced or removed by an electric vacuum cleaner.				
Section 2.2 Envirnomental exposure contribution Product characteristics	DI				
The substance is a UVCB complex. Mostly h	vydrophohic				
Quantity used	yaroprodic				
EU tons fraction used locally		0.1			
Regional tons (tons / year)		1.4e6			
Regional tons fraction used locally		1.460			
Site annual tons (tons/year)		1.4e6			
Maximum site daily tons (kg/day)		4.6e6			
Frequency and duration of use		4.000			
Continuous release					
Days of emission (days/year)		300			
Environmental factors not influenced by ri	sk management	300			
Local dilution factor in fresh water	sk management	10			
Local dilution factor in resh water 100					
Other operating conditions affecting environmental exposure					
Fraction released in the air by the process (initial release before the application of risk management measures) 0.0025					
Fraction released in wastewater by the process (initial release before the application of risk management measures) 0.00001					
Fraction released in the ground by the process (initial release before the application of risk management measures) 0.00001					
Technical measures and conditions at the process level (source) to prevent releases					
	vative process emissions estimates are used				
	reduce or limit discharges, emissions into the air and releases into the gro	und			
Environmental risk is related to the indirect					
In case of drainage to a sewage treatment	plant, no treatment is required.				
Handle emissions in such a way as to ensur	e a typical removal efficiency of (%).	99.4			
Handle the waste water on site (before starting the unloading operation) to ensure the required removal efficiency ≥ 76.9 (%):					
In case of drainage to an urban wastewater	treatment plant, ensure the effective removal required on site ≥ (%)	0			
Organizational measures to prevent / limit					
	he treatment of industrial waters on natural soils.				
	ment must be incinerated, kept under containment or treated.				
Conditions and measures for the municipal wastewater treatment plant Estimated removal of waste water by means of an urban treatment plant (%). 95.5					
Total efficiency of wastewater removal, after adoption of RMMs in the site and offsite (urban treatment plant) (%) 95.5					
rotar ciricicity of wastewater fellioval, all		4.6e6			
	1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7				
Maximum allowed tons of site (MSafe) on t		Supposed flow for the urban wastewater treatment plant (m³ / d) 2000 Conditions and measures related to the external treatment of waste for disposal			
Maximum allowed tons of site (MSafe) on t Supposed flow for the urban wastewater tr	eatment plant (m³ / d)	2000			
Maximum allowed tons of site (MSafe) on t Supposed flow for the urban wastewater tr Conditions and measures related to the ex	eatment plant (m³ / d) tternal treatment of waste for disposal	2000			
Maximum allowed tons of site (MSafe) on the Supposed flow for the urban wastewater the Conditions and measures related to the example Combustion emissions are governed by currently support to the combustion of	eatment plant (m ³ / d) ternal treatment of waste for disposal rent control measures.	2000			
Maximum allowed tons of site (MSafe) on the Supposed flow for the urban wastewater the Conditions and measures related to the example Combustion emissions are governed by currently support to the combustion of	eatment plant (m ³ / d) tternal treatment of waste for disposal rent control measures. ount in the impact assessment at regional level.	2000			
Maximum allowed tons of site (MSafe) on to Supposed flow for the urban wastewater to Conditions and measures related to the extended to the extended to the extended to the combustion emissions are governed by cure Emissions to combustion are taken into accombustions and measures for the external	eatment plant (m ³ / d) tternal treatment of waste for disposal rent control measures. ount in the impact assessment at regional level.	2000			

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3.1 Health

For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the ECETOC TRA method has been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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8. Use as fuel - Professional sector

Section 1			
Title			
Use as fuel			
Usage descriptors			
Sector of Use		22	
Process category		1, 2, 3, 8a, 8b, 16	
Environmental Release Category		9a, 9b	
Specific Environmental Release Category		ESVOC SpERC 9.12.v1	
Processes, Assignments, Covered Activitie	s		
		ponent) within closed or containment systems, including accidental	
·		nsfer, use, maintenance of equipment and handling of products waste.	
Evaluation method			
See section 3.			
Section 2 Operative conditions and risk ma	anagement	measures	
Section 2.1 Workers'exposure control			
Product Characteristics			
Product physical state	Liquid, va	apor pressure > 10 kPa in standard conditions.	
Substance concentration in the product		a percentage of substance in the product up to 100% (unless otherwise	
	indicated)	· · · · · · · · · · · · · · · · · · ·	
Quantity used	n.a.		
Frequency and duration of use/exposure		a daily exposure up to 8 hours (unless otherwise indicated).	
Human factors not influenced by risk	n.a.	, , , , , , , , , , , , , , , , , , , ,	
management			
Other operating conditions affecting	It requires	s the use of the product at a temperature not exceeding 20 ° C compared to	
exposure	room tem	perature, unless otherwise specified.	
·	It requires	the application of a suitable basic hygiene standards in the workplace.	
Exposure scenarios		neasures for risk management and operational conditions	
General measures (skin irritants)	Avoid dire	ect skin contact with the product. Identify potential indirect contact areas	
	with the s	kin. Wear protective gloves (tested according to EN374) if there is a	
	probabilit	y that the substance will come into contact with your hands. Eliminate	
		ation / spillage as soon as they occur. Immediately remove any	
		ation with the skin. Provide basic training to personnel aimed at preventing /	
		sposures and notifying any dermatological problems.	
General measures (carcinogenic agents)		technical progress and process updates (including automation) to eliminate	
		ns. Limit exposure by taking measurements such as closed systems,	
		equipment and special suction / local exhaust ventilation systems. Drain the	
		and clean the transfer lines before interrupting the containment. Clean /	
		equipment, if possible, before maintenance. Where exposure is available:	
		ss to authorized personnel only, provide operators with specific training on	
		and operations to minimize exposure risk, wear gloves and protective suits	
		t skin contamination, use a respiratory protective device when required for coosure scenarios, immediately discard any leaks and dispose of the waste	
		e conditions. Ensure the adoption of safe work systems or equivalent risk	
		ent solutions. Inspect, monitor, and maintain all devices and control	
	_	. Take into account the need for a risk-based health surveillance system.	
General exposure (closed system),		te the substance in a closed system.	
outside		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Closed unloading of bulk products	Ensure that the transfer of the material takes place in containment or with extract		
	ventilation	·	
Drums/lots transfer		at the transfer of the material takes place in containment or with extract	
•	ventilatio	•	
Refueling	Ensure th	at the transfer of the material takes place in containment or with extract	
-	ventilatio		
Aircraft supply	Ensure th	at the transfer of the material takes place in containment or with extract	

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	ventilation.		
Use as fuel (closed system)	Manipulate the substance in a closed system.		
Cleaning and maintenance of equipment	Drain the system before opening or maintaining the equipment.		
cleaning and maintenance of equipment	Store drains in sealed containers until disposal or subsequent recycling.		
	Immediately remove spills.		
	Ensure an adequate standard of general ventilation. Natural ventilation is of through doors, windows, etc. In controlled ventilation environments, the a introduced or removed by an electric vacuum cleaner. Ensure that operating personnel are properly formed in order to limit any exposur		
Storage	Store the substance inside a closed system.	exposure.	
Storage	Ensure an adequate standard of general ventilation. Natural ventilation is dor		
	through doors, windows, etc. In controlled ventilation environment		
	introduced or removed by an electric vacuum cleaner.	s, the all is	
Section 2.2 Envirnomental exposure contro			
Product characteristics	oi		
The substance is a UVCB complex. Mostly h	vdrophohic		
Quantity used	уиторполіс		
EU tons fraction used locally		0.1	
Regional tons (tons / year)			
		1.19e6	
Regional tons fraction used locally		0.0005	
Site annual tons (tons/year)		5.9e2	
Maximum site daily tons (kg/day)		1.6e3	
Frequency and duration of use			
Continuous release		1	
Days of emission (days/year)		365	
Environmental factors not influenced by ri	sk management	1	
Local dilution factor in fresh water		10	
ocal dilution factor in sea water 100			
Other operating conditions affecting envir			
Fraction released in the air by the process (initial release before the application of risk management measures) 0.01			
Fraction released in wastewater by the pro	cess (initial release before the application of risk management measures)	0.00001	
Fraction released in the ground by the process (initial release before the application of risk management measures) 0.00001			
Technical measures and conditions at the	process level (source) to prevent releases		
Procedures vary from site to site, so conser	vative process emissions estimates are used		
Site technical conditions and measures to	reduce or limit discharges, emissions into the air and releases into the gro	und	
Environmental risk is related to the indirect	exposure of humans by ingestion.		
In case of drainage to a sewage treatment	plant, no treatment is required.		
Handle emissions in such a way as to ensure a typical removal efficiency of (%).			
Handle the waste water on site (before starting the unloading operation) to ensure the required removal efficiency ≥ 3.4			
(%):			
	treatment plant, ensure the effective removal required on site ≥ (%)	0	
Organizational measures to prevent / limit			
	he treatment of industrial waters on natural soils.		
	ment must be incinerated, kept under containment or treated.		
Conditions and measures for the municipal		05.5	
Estimated removal of waste water by mear		95.5	
	er adoption of RMMs in the site and offsite (urban treatment plant) (%)	95.5	
	the basis of the next release after total waste removal (kg/g).	1.5e4	
Supposed flow for the urban wastewater tr		2000	
Conditions and measures related to the ex	·		
Combustion emissions are governed by cur			
	ount in the impact assessment at regional level.		
Conditions and measures for the external			
	y with applicable local and / or national legislation		
Section 3 Extimation of exposure			
3.1 Health			
Fautha a	evel at the workplace, where not expressly indicated, the ECETOC TRA met	hod has	

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been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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9. Use as fuel – Consumers

Section 1			
Title			
Use as fuel			
Usage descriptors			
Sector of Use		21	
Process category		13	
Environmental Release Category		9a, 9b	
Specific Environmental Release Category		ESVOC SpERC 9.12c.v1	
Processes, Assignments, Covered Activities			
It covers the use by the consumer as liquid			
Evaluation method			
See section 3.			
Section 2 Operative conditions and risk ma	nagement	measures	
Section 2.1 Workers'exposure control			
Product Characteristics			
Product physical state	Liquid, va	oor pressure> 10 kPa under standard conditions.	
Substance concentration in the product		nerwise specified it covers concentrations up to 100 (%)	
Quantity used		nerwise specified, it consumes up to 37500 grams; covers a skin contact area	
,	up to 420	· · · · · · · · · · · · · · · · · · ·	
Frequency and duration of use/exposure	Unless oth	nerwise specified, it includes usage frequencies up to 0.413 times a day;	
		posures up to 2 hours for each event.	
Other operating conditions affecting	Unless oth	nerwise specified, use at room temperature is assumed; it is assumed to be	
exposure	used in a r	room of 20 m ³ ; It is assumed to be used with typical ventilation conditions.	
Exposure scenarios	Specific m	easures for risk management and operational conditions	
Fuel - Liquid - Subcategory Added: fuel	ОС	Unless otherwise specified it includes concentrations up to 1 (%); includes	
supply for motor vehicles		up to 52 days / year usage; includes usage frequencies up to 1 time per	
		day; includes a skin contact area up to 210.00 cm ² ; for each use it	
		consumes up to 37500 grams; it includes outdoor use; it is used in a room	
		of 100 m ³ ; for each use it includes exposures up to 0.04 hours per event.	
	RMM	No specific value of RMM developed beyond the reported OCs.	
Fuel - Liquid - Subcategory Added: fuel	OC	Unless otherwise specified it includes concentrations up to 1 (%); includes	
supply for scooters		up to 52 days / year usage; includes usage frequencies up to 1 time per	
		day; includes a skin contact area up to 210.00 cm ² ; for each use it	
		consumes up to 3750 grams; it includes outdoor use; it is used in a room	
		of 100 m³; for each use it includes exposures up to 0.03 hours per event.	
	RMM	No specific value of RMM developed beyond the reported OCs.	
Fuel - liquid - subcategory added: garden	OC	Unless otherwise specified it includes concentrations up to 1 (%); includes	
equipment - use		up to 26 days / year usage; includes usage frequencies up to 1 time per	
		day; for each use it consumes up to 750 grams; it includes outdoor use; it	
		is used in a room of 100 m ³ ; for each use it includes exposures up to 2.00	
	DNANA	hours per event.	
	RMM	No specific value of RMM developed beyond the reported OCs.	
Fuel - liquid - subcategory added: garden	ОС	Unless otherwise specified it includes concentrations up to 1 (%); includes	
equipment - refueling		up to 26 days / year usage; includes usage frequencies up to 1 time per	
		day; It includes a skin contact area up to 420.00 cm ² ; for each use it consumes up to 750 grams; it includes use in a garage for cars (34 m ³)	
		under typical ventilation conditions; it is used in a garage for cars (34 m ²)	
		use it includes exposures up to 0.03 hours per event.	
	RMM	No specific value of RMM developed beyond the reported OCs.	
Section 2.2 Envirnomental exposure control			
Product characteristics			
The substance is a UVCB complex. Mostly hydrophobic			
Quantity used	yaropriodic		
EU tons fraction used locally		0.1	
EO tons fraction used locally 0.1			

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Regional tons (tons / year)	1.39e7
Regional tons fraction used locally	0.0005
Site annual tons (tons/year)	7.0e3
Maximum site daily tons (kg/day)	1.9e4
Frequency and duration of use	
Continuous release	
Days of emission (days/year)	365
Environmental factors not influenced by risk management	
Local dilution factor in fresh water	10
Local dilution factor in sea water	100
Other operating conditions affecting environmental exposure	
Fraction released in the air by the process (initial release before the application of risk management	0.01
measures)	
Fraction released in wastewater by the process (initial release before the application of risk	0.00001
management measures)	
Fraction released in the ground by the process (initial release before the application of risk	0.00001
management measures)	
Site technical conditions and measures to reduce or limit discharges, emissions into the air and release	es into the ground
Environmental risk is related to the indirect exposure of humans (mainly inhalation)	
Handle emissions in such a way as to ensure a typical removal efficiency of (%).	95.5
Handle the waste water on site (before starting the unloading operation) to ensure the required	1.8e5
removal efficiency ≥ (%):	
In case of drainage to an urban wastewater treatment plant, ensure the effective removal required on	2000
site ≥ (%)	
Conditions and massures related to the external treatment of waste for disposal	·

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

Combustion emissions are governed by current control measures.

Emissions to combustion are taken into account in the impact assessment at regional level.

Conditions and measures for the external recovery of waste

This substance is consumed during use and no rejection of the substance is to be recovered.

Section 3 Extimation of exposure

3.1 Health

For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the ECETOC TRA method has been used.

3.2 Environment

The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

No evaluation of the exposures was presented for human health.

Where different Risk Management / Operating Conditions are adopted, users are required to ensure that risks are managed at least equivalent.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

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10. Production and processing of rubber

Section 1			
Title			
Production and processing of rubber			
Usage descriptors			
Sector of Use	3, 10, 11		
Process category	1, 2, 3, 8a, 8b, 9, 210		
Environmental Release Category	1, 4, 6d		
Processes, Assignments, Covered Activitie	us s		
	ticles in closed or under containment systems, including accidental exposure during the		
	ndling and mixing of rubber additives, classification, vulcanization, cooling, finishing and		
maintenance.			
Evaluation method			
See section 3.			
Section 2 Operative conditions and risk m	anagement measures		
Section 2.1 Workers'exposure control			
Product Characteristics			
Product physical state	Liquid, vapor pressure > 10 kPa in standard conditions.		
Substance concentration in the product	It covers a percentage of substance in the product up to 100% (unless otherwise		
	indicated).		
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise specified).		
Human factors not influenced by risk	n.a.		
mangement			
Exposure scenarios	Specific measures for risk management and operational conditions		
General measures (skin irritants)	Avoid direct skin contact with the product. Identify potential indirect contact areas		
(,	with the skin. Wear protective gloves (tested according to EN374) if there is a		
	probability that the substance will come into contact with your hands. Eliminate		
	contamination / spillage as soon as they occur. Immediately remove any		
	contamination with the skin. Provide basic training to personnel aimed at preventing /		
	limiting exposures and notifying any dermatological problems.		
General measures (carcinogenic agents)	Consider technical progress and process updates (including automation) to eliminate		
	dispersions. Limit exposure by taking measurements such as closed systems,		
	dedicated equipment and special suction / local exhaust ventilation systems. Drain the		
	systems and clean the transfer lines before interrupting the containment. Clean /		
	purge the equipment, if possible, before maintenance. Where exposure is available:		
	limit access to authorized personnel only, provide operators with specific training on		
	activities and operations to minimize exposure risk, wear gloves and protective suits		
	to prevent skin contamination , use a respiratory protective device when required for		
	certain exposure scenarios, immediately discard any leaks and dispose of the waste		
	under safe conditions. Ensure the adoption of safe work systems or equivalent risk		
	management solutions. Inspect, monitor, and maintain all devices and control		
	measures. Take into account the need for a risk-based health surveillance system.		
Product transfers	Store the substance inside a closed system.		
(closed systems)	Ensure that the transfer of the material takes place in containment or extract		
	ventilation.		
General Exposure (closed systems)	Manipolare la sostanza in un sistema chiuso.		
Product transfers	Ensure that the transfer of the material takes place in containment or extract		
	ventilation.		
Weigh bulk products	Manipulate the substance in a closed system.		
	Wear protective gloves conforming to EN374.		
Laboratory activities	Handle only under a chemical hood or use equivalent methods to minimize exposure		
	hazards.		
Cleaning and maintenance of equipment	Drain the system before opening or maintaining the equipment.		
	Store drains in sealed containers until disposal or subsequent recycling.		

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Immediately remove spills. Ensure an adequate standard of general ventilation. Natural ventilation is dorn through doors, windows, etc. In controlled ventilation environments, the air introduced or removed by an electric vacuum cleaner. Ensure that operating personnel are properly formed in order to limit any exposure.			
Section 2.2 Envirnomental exposure control			
Product characteristics			
The substance is a UVCB complex. Mostly hydrophobic			
Quantity used			
EU tons fraction used locally	0.1		
Regional tons (tons / year)	94		
Regional tons fraction used locally	1		
Site annual tons (tons/year)	94		
Maximum site daily tons (kg/day)	4.7e3		
Frequency and duration of use			
Continuous release			
Days of emission (days/year)	20		
Environmental factors not influenced by risk management			
Local dilution factor in fresh water	10		
Local dilution factor in sea water	100		
Other operating conditions affecting environmental exposure			
Fraction released in the air by the process (initial release before the application of risk managem measures)			
Fraction released in wastewater by the process (initial release before the application of management measures)	risk 0.01		
Fraction released in the ground by the process (initial release before the application of management measures)	risk 0.0001		
Technical measures and conditions at the process level (source) to prevent releases	L		
Procedures vary from site to site, so conservative process emissions estimates are used			
Site technical conditions and measures to reduce or limit discharges, emissions into the air and re	leases into the ground		
Prevent the release of undissolved substances or recover them from wastewater.	incuses into the ground		
Environmental risk is related to the indirect exposure of humans by ingestion.			
In case of drainage to a sewage treatment plant, no treatment is required.			
Handle emissions in such a way as to ensure a typical removal efficiency of (%).	0		
Handle the waste water on site (before starting the unloading operation) to ensure the requiremoval efficiency ≥ (%):	ired 23.9		
In case of drainage to an urban wastewater treatment plant, ensure the effective removal required site ≥ (%)	I on 0		
Organizational measures to prevent / limit the release of the site	l .		
Do not distribute the sludge generated by the treatment of industrial waters on natural soils.			
Sludges generated by industrial water treatment must be incinerated, kept under containment or tr	reated		
Conditions and measures for the municipal wastewater treatment plant			
Estimated removal of waste water by means of an urban treatment plant (%).	95.5		
Total efficiency of wastewater removal, after adoption of RMMs in the site and offsite (ur treatment plant) (%)	ban 95.5		
Maximum allowed tons of site (MSafe) on the basis of the next release after total waste removal (kg/g).	4.2e4		
Supposed flow for the urban wastewater treatment plant (m ³ / d)	2000		
Conditions and measures related to the external treatment of waste for disposal			
The external treatment and disposal of waste must comply with applicable local and / or national le	gislation		
Conditions and measures for the external recovery of waste			
Waste collection and recycling must comply with applicable local and / or national legislation			
Section 3 Extimation of exposure			
3.1 Health			
For the purpose of assessing the exposure level at the workplace, where not expressly indicated, the been used.	e ECETOC TRA method has		
3.2 Environment			

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The Hydrocarbon Block Method (HBM) was used to calculate the environmental exposure with the Petrorisk model.

Section 4

4.1 Health

It is expected that exposures will not exceed DN (M) EL when the Risk Management / Operating Conditions Measures described in Section 3 are applied. Where different Risk Management / Operating Conditions Measures are adopted, users are required to ensure that the risks are managed at least equivalent.

Data on hazard characteristics do not allow the derivation of a DNEL for skin irritant effects.

Data on hazard characteristics do not support the need to establish a DNEL for other health effects.

Risk Management Measures are based on qualitative risk characterization.

4.2 Environment

The guide line is based on assumed conditions of use that may not apply to all sites; so you may need a scaling operation to define appropriate risk management measures for each site.

The required efficiency of wastewater removal can be achieved by using onsite / offsite technologies, either individually or in combination.

The required air removal efficiency can be achieved by using onsite technologies, either individually or in combination.

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheet (http://cefic.org/en/reach-for-industries-libraries.html).

Local evaluations on EU refineries were carried out using site-specific data and they are attached to the PETRORISK - "Specific site site" worksheet.

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ETBE

1. Using ETBE in fuels - Industrial sector

Section 1				
Title				
Using ETE in fuels; CAS NR 637-92-3				
Usage descriptors				
Sector of Use		Industrial (SU3)		
Process category		PROC1, PROC2, PROC3, PROC8A, PROC8B, PROC	16	
Environmental Release Category		ESVOC3 SpERC		
Processes, Assignments, Covered Activities	s	·		
		ivities associated with the transfer, use, maintenar	nce of equipment and	
waste disposal.	· ·	, ,		
Section 2 Operative conditions and risk ma	nagement	measures		
Section 2.1 Workers'exposure control				
Product Characteristics				
Product physical state	Liquid, va	por pressure> 10 kPa under standard conditions.		
Substance concentration in the product		a percentage of substance in the product up to 15%	%	
Quantity used	n.a.	. p		
Frequency and duration of use/exposure		a daily exposure of up to 8 hours (unless otherwise	specified).	
Human factors not influenced by risk	n.a.	, - ,	1 1	
management				
Other operating conditions affecting	It require	s the application of a suitable basic hygiene standa	rds in the workplace.	
exposure	it i equil et	o the approacion of a saleasie sale hygiene standa	. as the mornplace.	
Exposure scenarios	Specific n	neasures for risk management and operational co	nditions	
Transfer of bulk products; Discontinuous		te the substance within a predominantly closed sys		
process with sampling; Filling /		r ventilation. Do not undertake activities that allow		
preparation of equipment from drums or		ear a whole mask (EN140 compliant) with Type A o	•	
containers.		, , , , , , , , , , , , , , , , , , , ,		
Stock / batch transfers; Filling /	Use pump	os for drums.		
preparation of equipment from drums or				
containers; Transfer of bulk products;				
dedicated structure.				
General Exposure (closed systems)	Specific m	neasures have not been identified.		
General Exposure (closed systems) with	Ensure an extract ventilation system at the material transfer points and at other			
sampling	openings.		·	
General Exposure (closed systems); Use		xtraction ventilation at the points where the emiss	ions occur.	
in discontinuous processes under				
containment; with sampling.				
(closed systems); use of fuel.	Specific m	neasures have not been identified.		
Cleaning and maintenance of equipment;	Drain the	system before opening or maintaining the equipm	ent.	
non-dedicated structure such as repair of		dertake activities that allow exposure for more that		
fuel pumps inside buildings.				
Storage; General Exposure (closed	Specific m	neasures have not been identified.		
systems)				
Storage; General Exposure (closed	Make sur	e the operation is done outside		
systems); with sampling.				
Section 2.2 Envirnomental exposure control	ol			
Product characteristics				
The substance is formed by a single chemic	al entity; pr	redominantly hydrophobic; Ready biodegradable.		
Transport and distribution				
Operating conditions				
For outdoor use.				
Quantity used				
Regional tons (tons / year) 901,000			901,000	
Regional tons fraction used locally 0.02			0.02	

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Average Daily Tor	ns of the Site (kg / day)	51,486
Site annual tons (tons/year) 18,020		
Frequency and di	uration of use	·
Continuous releas	se	
Emission days (da	ys/year)	350
Other operating	conditions affecting environmental exposure	
Use in closed syst	ems, in dry or humid processes.	
Fraction released	into the air from the process	1.00e-04
Fraction released	into waste water from the process	1.00e-05
Fraction released	from the process (only regional)	1.00e-05
RMMs		
Technical measur	es and conditions at the process level (source) to prevent releases	
Procedures vary f	rom site to site, so conservative process emissions estimates are used	
Site technical con	ditions and measures to reduce or limit discharges, emissions into the	e air and releases into the ground
Air	No air emission control required; required removal efficiency of 0%	
Waste water	Treat waste water on site (before starting the unloading operation) 95%	to ensure the removal efficiency required>
Ground	Handle emissions in such a way as to ensure a typical removal efficie	ency of 0%
Organizational m	easures to prevent / limit the release from the site	•
	se of undigested substances or their recovery from wastewater.	
	leasures for the municipal wastewater treatment plant.	
	the discharge flow from the industrial waste water treatment plant is 2	2000 m ³ / day.
	leasures related to the external treatment of waste for disposal	
n.a.	·	
Conditions and m	leasures for the external recovery of waste	
n.a.	•	
Other environme	ntal control measures in addition to the previous ones	
None	·	

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2. Using ETBE in fuels - Professional sector

Section 1			
Title			
Using ETBE in fuels; CAS NR 637-92-3			
Usage descriptors			
Sector of Use	Professional (SU22)		
Process category	PROC1, PROC2, PROC3, PROC8A, PROC8B, PROC9, PROC16		
Environmental Release Category	ESVOC30 SpERC		
Processes, Assignments, Covered Activitie	S		
It covers use as fuel (or fuel additive), inclu	ding the activities associated with the transfer, use, maintenance of equipment and		
waste disposal.			
Section 2 Operative conditions and risk ma	anagement measures		
Section 2.1 Workers'exposure control			
Product Characteristics			
Product physical state	Liquid, vapor pressure> 10 kPa under standard conditions.		
Substance concentration in the product	It covers a percentage of substance in the product up to 15%		
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise specified).		
Human factors not influenced by risk	n.a.		
management	II.a.		
Other operating conditions affecting	It requires the application of a suitable basic hygiene standards in the workplace.		
I	Tit requires the application of a suitable basic hygiene standards in the workplace.		
exposure Exposure scenarios	Specific measures for risk management and enerational conditions		
•	Specific measures for risk management and operational conditions		
Transfer of bulk products; Discontinuous	Manipulate the substance within a predominantly closed system equipped with		
process with sampling; Filling /	extraction ventilation. Do not undertake activities that allow exposure for more than 4		
preparation of equipment from drums or	hours. Wear a whole mask (EN140 compliant) with Type A or above filter.		
containers.			
Stock / batch transfers; filling / preparing	Make sure the operation is done outside.		
equipment from drums or containers;	Ensure that the transfer of the material takes place in containment or extract		
Transfer of bulk products;	ventilation.		
dedicated structure.			
Refueling	Ensure an adequate standard of controlled ventilation (10 to 15 air units per hour). Do		
	not perform activities that allow for exposure for more than 1 hour. Wear a whole		
	mask (EN140 compliant) with Type A or above filter.		
General Exposure (closed systems); with	Do not undertake activities that allow for exposure for more than 4 hours. Wear a		
sampling	whole mask (EN140 compliant) with Type A or above filter.		
General Exposure (closed systems); Use	Ensure an adequate standard of controlled ventilation (10 to 15 air units per hour).		
in discontinuous processes under			
containment; with sampling			
Filling barrels and small containers;	Use drum pumps or pay special attention when loading from containers. Do not		
dedicated structure	undertake activities that allow exposure for more than 4 hours. Wear a whole mask		
	(EN140 compliant) with Type A or above filter.		
(closed systems); use of fuel.	Make sure the operation is done outside. Ensure an adequate standard of controlled		
	ventilation (10 to 15 air units per hour).		
Cleaning and maintenance of equipment.	Drain and purge the system before opening or maintaining the equipment. Do not		
non-dedicated structure such as repair of	undertake activities that allow for exposure for more than 4 hours. Wear a whole		
fuel pumps inside buildings.	mask (EN140 compliant) with Type A or above filter.		
Cleaning and maintenance of equipment.	Drain and purge the system before opening or maintaining the equipment. Do not		
Structure not dedicated eg repair of fuel	undertake activities that allow for exposure for more than 4 hours. Wear a whole		
pumps outside of buildings.	mask (EN140 compliant) with Type A or above filter.		
Storage; General Exposure (closed			
systems)			
Section 2.2 Envirnomental exposure control			
Product characteristics			
The substance is formed by a single chemical entity; predominantly hydrophobic; Ready biodegradable.			
The substance is formed by a single enemical energy, predominantly hydrophobic, neady blodegraduste.			

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Operating conditions	S			
For outdoor use.				
Quantity used				
Average daily consur	nption for a dispersive type of use (Kg / day)	4.94		
Frequency and durat	tion of use			
Dispersive use				
Emission days (days/	year)	365		
Other operating con	ditions affecting environmental exposure			
Use in open systems				
Fraction released in t	he air from strongly dispersive use (only regional)	1.00e-2		
	wastewater from strongly dispersive use	1.00e-05		
Fracture released on	the surface of the water from strongly dispersive use (only regional)	1.00e-04		
Fraction released in t	the soil from strongly dispersive use (only regional)	1.00e-05		
RMMs				
Technical measures	and conditions at the process level (source) to prevent releases			
Procedures vary fron	n site to site, so conservative process emissions estimates are used			
Site technical condit	ions and measures to reduce or limit discharges, emissions into the air and	releases into the ground		
Air	No air emission control required; required removal efficiency of 0%			
Waste water	Treat waste water on site (before starting the unloading operation) to e required> 95%	Treat waste water on site (before starting the unloading operation) to ensure the removal efficiency required> 95%		
Ground	Handle emissions in such a way as to ensure a typical removal efficiency	of 0%		
Organizational meas	ures to prevent / limit the release from the site			
Prevent the release of	of undigested substances or their recovery from wastewater.			
Conditions and meas	sures for the municipal wastewater treatment plant.			
It is assumed that the	e discharge flow from the industrial waste water treatment plant is 2000 m ³ /	day.		
Conditions and meas	sures related to the external treatment of waste for disposal			
n.a.				
Conditions and meas	sures for the external recovery of waste			
n.a.				
Other environmenta	l control measures in addition to the previous ones			
None				

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3. Using ETBE in fuels – Consumer

Section 1			
Title			
Using ETBE in fuels; CAS NR 637-92-3			
Usage descriptors			
Sector of Use		Consumer	
Process category		PC13	
Environmental Release Category		ERC8d	
Specific Environmental Release category	ory	ESVOC30 SpERC	
Processes, tasks, activities covered			
Using fuel for fueling in 2 and 4 stroke			
Section 2 Operative conditions and ri		measures	
Section 2.1 Workers'exposure contro	ol .		
Product Characteristics			
Product physical state		por pressure> 10 kPa under standard cond	ditions.
Vapour pressure	170 hPa a	at 25°C	
Concentration of the substance into t	he Diesel, co	ontaining <15% of the substance	
product			
Quantity used	Up to 60	liters for refueling	
Frequency and duration of use/expos	ure Up to 3 ti	mes a week	
Other operating conditions affecting	Unless ot	herwise specified, use at room temperatur	re is recommended.
exposure			
Exposure scenarios	Specific n	neasures for risk management and opera	tional conditions
PC13: Fuel	OC	Unless otherwise specified, it includes co	incentrations up to 15%; includes
		uses up to 150 days / year; includes uses	up to 1 time per day of use; for
	every use, includes exposures up to 15 minutes per event.		ninutes per event.
	RMM	No specific value of RMM developed bey	ond the reported OCs.
Section 2.2 Envirnomental exposure control			
Product characteristics			
The substance is formed by a single ch	nemical entity; p	redominantly hydrophobic; Ready biodegr	adable.
Operating conditions			
For indoor/outdoor use.			
Quantity used			
Average daily consumption for a dispe	ersive type of use	e (Kg / day)	4.94
Frequency and duration of use	,,	, ,	
Dispersive use			
Emission days (days/year)			365
Other operating conditions affecting	environmental e	exposure	
Use in open systems		•	
Fraction released in the air from stron	igly dispersive us	se (only regional)	1.00e-02
			1.00e-05
Fracture released on the surface of th			1.00e-04
			1.00e-05
Fraction released in the soil from strongly dispersive use (only regional) 1.00e-05 RMMs			
Technical measures and conditions a	t the process lev	rel (source) to prevent releases	
Procedures vary from site to site, so c			
			d releases into the ground
Site technical conditions and measures to reduce or limit discharges, emissions into the air and releases into the ground Air No air emission control required; required removal efficiency of 0%			a releases into the ground
			ensure the removal efficiency
required> 9.			chaire the removal efficiency
round Handle emissions in such a way as to ensure a typical removal efficiency of 0%			
Organizational measures to prevent / limit the release from the site			
Prevent the release of undigested sub			
Conditions and measures for the municipal wastewater treatment plant.			

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It is assumed that the discharge flow from the industrial waste water treatment plant is 2000 m ³ / day.	
Conditions and measures related to the external treatment of waste for disposal	
n.a.	
Conditions and measures for the external recovery of waste	
n.a.	
Other environmental control measures in addition to the previous ones	
None	

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MTBE

1. Using MTBE in fuels - Industrial

Section 1			
Title			
Using MTBE in fuels; CAS NR 1634-04-4			
Usage descriptors			
Sector of Use	Industrial		
Process category	PROC1, PROC2, PROC3, PROC8A, PROC8B, PROC16		
Specific Environmental Release Category	ESVOC3 SpERC		
Processes, Assignments, Covered Activitie			
	ding the activities associated with the transfer, use, maintenance of equipment and		
waste disposal.			
Section 2 Operative conditions and risk ma	anagement measures		
Section 2.1 Workers'exposure control			
Product Characteristics			
Product physical state	Liquid, vapor pressure> 10 kPa under standard conditions.		
Substance concentration in the product	It covers a percentage of substance in the product up to 15%		
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise specified).		
Human factors not influenced by risk	n.a.		
management			
Other operating conditions affecting	It requires the application of a suitable basic hygiene standards in the workplace.		
exposure	it requires the application of a suitable basic hygiene standards in the workplace.		
Exposure scenarios	Specific measures for risk management and operational conditions		
General measures (skin irritants)	Avoid direct skin contact with the product. Identify potential indirect contact areas		
	with the skin. Wear protective gloves (tested according to EN374) if there is a char		
	that the substance will come into contact with your hands. Eliminate contamination /		
	spillage as soon as they occur. Immediately remove any contamination with the skin.		
	Provide basic training to personnel aimed at preventing / limiting exposures and		
	notifying any dermatological problems.		
Transfer of bulk products; Discontinuous	Ensure that the transfer of the material takes place in containment or with extract		
process; with sampling;	ventilation.		
filling / preparing equipment from drums			
or containers.			
Stock / batch transfers; filling / preparing	Use pumps for drums.		
equipment from drums or containers;	and the first an arrange.		
transfer of bulk products;			
dedicated structure.			
General Exposure (closed systems)	Specific measures have not been identified.		
General Exposure (closed systems) with	Specific measures have not been identified.		
sampling			
General Exposure (closed systems); Use	Do not undertake activities that allow for exposure for more than 4 hours. Wear a		
in discontinuous processes under	whole mask (EN140 compliant) with Type A or above filter.		
containment; with sampling.			
(closed systems); use of fuel.	Specific measures have not been identified.		
(closed systems); Discontinuous process.	Do not undertake activities that allow for exposure for more than 4 hours. Wear a		
•	whole mask (EN140 compliant) with Type A or above filter.		
Cleaning and maintenance of equipment;	Do not undertake activities that allow for exposure for more than 4 hours. Wear a		
non-dedicated structure such as repair of	whole mask (EN140 compliant) with Type A or above filter.		
fuel pumps inside buildings.			
Storage; General Exposure (closed	sed Specific measures have not been identified.		
systems)	(
Storage; General Exposure (closed Make sure the operation is done outside			
systems); with sampling.			

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Section 2.2 Envirnomen	ital exposure control			
Product characteristics				
The substance is formed	by a single chemical entity; predominantly hydrophobic; Ready bio	degradable.		
Transport and distribut				
Operating conditions				
For outdoor use.				
Quantity used				
EU tons fraction used lo	cally	0.57		
Regional tons (tons / ye	ar)	659,000		
Regional tons fraction u	sed locally	0.02		
Daily average tons of the	e site (kg/day)	37,657		
Annual site tons (kg/day	v)	13,180		
Frequency and duration	n of use			
Continuous release				
Emission Days (Days / Yo	ear)	350		
Other operating conditi	ions affecting environmental exposure			
Use in closed systems, in	n dry or humid processes.			
Fraction released into th	ne air by the process	1.00e-04		
Fraction released into w	raste water by the process	1.00e-05		
Fraction released by the process (only regional) 1.00e-05				
RMMs	RMMs			
Technical measures and	d conditions at the process level (source) to prevent releases			
Procedures vary from si	te to site, so conservative process emissions estimates are used			
Site technical condition	s and measures to reduce or limit discharges, emissions into the ai	ir and releases into the ground		
Air	No air emission control required; required removal efficiency of 0			
Waste water	/aste water Treat waste water on site (before starting the unloading operation) to ensure the removal efficiency required> 95%			
Ground	Handle emissions in such a way as to ensure a typical removal effi	iciency of 0%		
Organizational measure	es to prevent / limit the release from the site			
Prevent the release of u	ndigested substances or their recovery from wastewater.			
Conditions and measure	es for the municipal wastewater treatment plant.			
	scharge flow from the industrial waste water treatment plant is 200	00 m ³ / day.		
Conditions and measure	es related to the external treatment of waste for disposal			
n.a.				
Conditions and measure	es for the external recovery of waste			
n.a.				
Other environmental co	ontrol measures in addition to the previous ones			
None				

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2. Using MTBE in fuels - Professional

Section 1			
Title			
Using MTBE in fuels; CAS NR 1634-04-4			
Usage descriptors			
Sector of Use	Professional		
Process category	PROC1, PROC2, PROC3, PROC8A, PROC8B, PROC9, PROC16		
Environmental Release Category	ERC8b, ERC8e		
Specific Environmental Release Category ESVOC30 SpERC			
Processes, Assignments, Covered Activitie			
waste disposal.	ding the activities associated with the transfer, use, maintenance of equipment and		
•			
Section 2 Operative conditions and risk ma	anagement measures		
Section 2.1 Workers'exposure control			
Product Characteristics	T		
Product physical state	Liquid, vapor pressure> 10 kPa under standard conditions.		
Substance concentration in the product	It covers a percentage of substance in the product up to 15%		
Quantity used	n.a.		
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise specified).		
Human factors not influenced by risk	n.a.		
management			
Other operating conditions affecting	It requires the application of a suitable basic hygiene standards in the workplace.		
exposure			
Exposure scenarios	Specific measures for risk management and operational conditions		
General measures (skin irritants)	Avoid direct skin contact with the product. Identify potential indirect contact areas		
	with the skin. Wear protective gloves (tested according to EN374) if there is a chance		
	that the substance will come into contact with your hands. Eliminate contamination		
	spillage as soon as they occur. Immediately remove any contamination with the skin.		
	Provide basic training to personnel aimed at preventing / limiting exposures and		
	notifying any dermatological problems.		
Transfer of bulk products; Discontinuous	Ensure that the transfer of the material takes place in containment or with extract		
process; with sampling;	ventilation.		
filling / preparing equipment from drums			
or containers.			
Stock / batch transfers; filling / preparing	Ensure that the transfer of the material takes place in containment or with extract		
equipment from drums or containers;	ventilation.		
transfer of bulk products;	Vertilation		
dedicated structure.			
Refueling	Ensure an adequate standard of controlled ventilation (10 to 15 air units per hour).		
General Exposure (closed systems) with	Specific measures have not been identified.		
sampling	Specific measures have not been identified.		
	Make sure the eneration is done outside		
General Exposure (closed systems); Use	Make sure the operation is done outside.		
in discontinuous processes under			
containment; with sampling.			
Filling barrels and small containers;	Use drum pumps or pay special attention when loading from containers. Do not		
dedicated structure	perform activities that allow for exposure for more than 1 hour. Wear a whole mask		
	(EN140 compliant) with Type A or above filter.		
(closed systems); use of fuel.	Specific measures have not been identified		
Cleaning and maintenance of equipment.	Drain and purge the system before opening or maintaining the equipment. Do no		
non-dedicated structure such as repair of	undertake activities that allow for exposure for more than 4 hours. Wear a whole		
fuel pumps inside buildings.	mask (EN140 compliant) with Type A or above filter.		
Cleaning and maintenance of equipment.	Drain and purge the system before opening or maintaining the equipment. Do no		
Structure not dedicated eg repair of fuel	undertake activities that allow for exposure for more than 4 hours. Wear a whole		
pumps outside of buildings.			
Storage; general exposures (closed	Specific measures have not been identified		

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systems)				
Section 2.2 Envirnom	ental exposure control			
Product characteristic	CS CS			
The substance is form	ed by a single chemical entity; predominantly hydrophobic; Ready biodegra	idable.		
Operating conditions				
For outdoor use.				
Quantity used				
Average daily consum	ption for a dispersive type of use (Kg / day)	3.61		
Frequency and durati	on of use			
Dispersive use				
Emission days (days/y	ear)	365		
Other operating cond	itions affecting environmental exposure			
Use in open systems				
Fraction released in th	ne air from strongly dispersive use (only regional)	1.00e-02		
Fracture released in w	rastewater from strongly dispersive use	1.00e-05		
Fracture released on t	he surface of the water from strongly dispersive use (only regional)	1.00e-04		
Fraction released in th	Fraction released in the soil from strongly dispersive use (only regional) 1.00e-05			
RMMs				
Technical measures a	nd conditions at the process level (source) to prevent releases			
Procedures vary from	site to site, so conservative process emissions estimates are used			
Site technical condition	ons and measures to reduce or limit discharges, emissions into the air and	releases into the ground		
Air	No air emission control required; required removal efficiency of 0%			
Waste water	Treat waste water on site (before starting the unloading operation) to e	ensure the required removal		
	removal of 38%			
Ground	No emissions checks are required on the ground; the required removal	efficiency is equal to 0%.		
Organizational measu	res to prevent / limit the release from the site			
	undigested substances or their recovery from wastewater. (OMS1)			
Conditions and meas	ures for the municipal wastewater treatment plant.			
It is assumed that the	discharge flow from the industrial waste water treatment plant is 2000 m ³ ,	/ day.		
Conditions and meas	ures related to the external treatment of waste for disposal			
n.a.				
Conditions and meas	ures for the external recovery of waste			
n.a.				
Other environmental	control measures in addition to the previous ones			
None				

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3. Using MTBE in fuels - Consumer

Section 1					
11313	Title				
Using MTBE in fuels; CAS NR 1634-04-4					
	Usage descriptors				
Sector of Use		Consumer			
Process category		PC13			
Environmental Category Release		ERC8d			
Specific Environmental Category Rele	ase	ESVOC30 SpERC			
Processes, tasks, activities covered					
Using fuel for fueling in 2 and 4 stroke	e engines.				
Section 2 Operative conditions and r	isk management	measures			
Section 2.1 Workers'exposure contro	ol				
Product Characteristics					
Product physical state	Liquid, va	por pressure> 10 kPa under standard condition	ns.		
Vapour pressure	330 hPa a	at 25°C			
Concentration of the substance into t	he Diesel, co	ontaining <15% of the substance			
product					
Quantity used	Up to 60	liters for refueling			
Frequency and duration of use /		mes a week			
exposure					
Other operating conditions affecting	Unless ot	herwise specified, use at room temperature is	recommended		
exposure					
Exposure scenarios	Specific n	neasures for risk management and operating	conditions		
PC13: Fuel	OC	Unless otherwise specified, it includes concer			
		uses up to 150 days / year; includes uses up t			
	every use, includes exposures up to 15 minutes per event.				
	RMM	No specific value of RMM developed beyond			
Section 2.2 Envirnomental exposure	control				
Product characteristics					
	nemical entity: p	redominantly hydrophobic; Ready biodegradal	ble.		
Operating conditions	,,	, , , , , , , , , , , , , , , , , , , ,			
For outdoor use.					
Quantity used					
Average daily consumption for a type of dispersive use (Kg / day) 3.61					
Frequency and duration of use	or dispersive use	z (NB / ddy)	3.01		
Dispersive use					
Emission days (days/year)			365		
Other operating conditions affecting	environmental	exposure	1 303		
Use in open systems	C.A. Omnental	onpood. C			
. ,					
	Fraction released in the air from strongly dispersive use (only regional) Fracture released in wastewater from strongly dispersive use 1.00e-05				
			1.00e-05		
	Fracture released on the surface of the water from strongly dispersive use (only regional) 1.00e-04				
Fraction released in the soil from strongly dispersive use (only regional) 1.00e-05					
RMMs Technical measures and conditions a	t the present less	rol (source) to provent releases			
Procedures vary from site to site, so conservative process emissions estimates are used Site technical conditions and measures to reduce or limit discharges, emissions into the air and releases into the ground					
			eases into the ground		
Air No air emission control required; required removal efficiency of 0%					
	Waste water Treat waste water on site (before starting the unloading operation) to ensure the required removal		ure the required removal		
	removal of 37%		5.00/		
Ground Handle emissions in such a way as to ensure a typical removal efficiency of 0%					
Organizational measures to prevent / limit the release from the site					
Prevent the release of undigested sub	stances or their	recovery from wastewater.			

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Conditions and measures for the municipal wastewater treatment pla
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It is assumed that the discharge flow from the industrial waste water treatment plant is 2000 m³ / day.

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

n a

Conditions and measures for the external recovery of waste

n.a.

Other environmental control measures in addition to the previous ones

None

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TAME

1. Use in fuels - Industrial

Section 1	Titolo dello scenario di esposizione
Title	Use in fuel; CAS 91995-60-7
Usage descriptors	Sector of use: Industrial SU3
	Process category: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16.
	Environmental Release Category: ERC8b
	Specific Environmental Release Category: ESVOC3 SpERC
Process, Assignments, Covered Activities	It covers use as an additive in fuels and includes activities associated with its transfer, use, maintenance of equipment and waste treatment.
Section 2	Operating conditions and risk management measures
Section 2.1	Workers' exposure control
Product Characteristics	•
Product physical state	Liquid, vapor pressure> 10 kPa under standard conditions
Substance concentration in the product	Includes percentage of substance in product up to 15% (Gnew)
Quantity used	n.a.
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise specified).
Human factors not influenced by risk management	n.a.
Other operating conditions affecting exposure	It requires the application of a suitable basic hygiene standards in the workplace.
Exposure scenarios	Specific measures for risk management
Relocation of bulk products. Discontinuous process by sampling. Filling / preparation of equipment from drums or containers.	Ensure that the transfer of the material takes place in containment or extract ventilation
Stock / batch transfers; Filling / preparation of equipment from drums or containers; transfer of bulk products; dedicated structure.	Use pumps for drums
General Exposure (closed systems)	Specific measures have not been identified
General Exposure (closed systems) with sampling	Specific measures have not been identified
General Exposure (closed systems); use in discontinuous processes under containment with sampling	Specific measures have not been identified
(closed systems); Use of fuel	Specific measures have not been identified
(closed systems); Discontinuous process	Specific measures have not been identified
Cleaning and maintenance of non-dedicated equipment such as sheltered fuel pumps	Drain and purge the system before opening or maintaining the equipment
Storage; general exposures (closed systems)	Specific measures have not been identified
Storage General Exposure (closed systems) with sampling	Specific measures have not been identified
Section2.2	Environmental exposure control
Product characteristics	The substance is formed by a single chemical entity
	Mostly hydrophobic
	Ready biodegradable
Operating conditions	For outdoor use
Quantity used	
EU tons fraction used locally	1
Regional tons (tons / year)	790,000
Regional tons fraction used locally	0.02
Daily average tons of the site (kg/day)	52,667
Annual site tons (kg/day)	15,800
Frequency and duration of use	
Release Type	Continuous

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Emission days (days/year)	350
Other operational conditions affecting environmental	Use in closed systems
exposure	Both in dry and wet processes
Fraction released into the air by the process	1.00e-04
Fraction released into the waste water by the process	3.00e-05
Fraction released by the process (only regional)	1.00e-05
RMMs	
Technical measures at the process level (source) to prevent	Procedures vary from site to site, so conservative process
releases	emissions estimates are used
Site technical conditions and measures to reduce or limit discl	narges, emissions into the air and releases into the ground
Air	No air emission control required; required removal efficiency of
	0%
Waste water	Handle the wastewater in the site (before getting to drain the
	water) to ensure the required removal efficiency> 78%.
Ground	No soil emission control is required. The required removal
	efficiency is 0%.
Organizational measures to prevent / limit the release from	Prevent the release of undigested substances or their recovery
the site	from wastewater. Sludges generated by industrial water
	treatment must be incinerated, kept under containment or
	treated.
Conditions and measures for the municipal wastewater	It is assumed that the discharge flow from the industrial waste
treatment plant	water treatment plant is 2000 m ³ / day.
Conditions and measures related to the external treatment	n.a.
of waste for disposal	
Conditions and measures for the external recovery of waste	n.a.
Other environmental control measures than those above	None

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2. Use in fuel - Professional

Section 1	Title of exposure scenario	
Title	Use in fuels; CAS 91995-60-7	
Usage descriptors	Sector of Use: Professional SU22	
	Process Category: PROC1, PROC2, PROC3, PROC8a, PROC8b,	
	PROC9, PROC16.	
	Environmental Release Category: ERC8b	
	Specific Environmental Release Category: ESVOC30 SpERC	
Process, Assignments, Covered Activities	Includes use as a fuel additive and includes activities associated	
	with its transfer, use, maintenance of equipment and waste	
	treatment.	
Section 2	Operating conditions and risk management measures	
Section 2.1	Workers' exposure control	
Product Characteristics	, , , , , , , , , , , , , , , , , , , ,	
Product physical state	Liquid, vapor pressure> 10 kPa under standard conditions	
Substance concentration in the product	Includes percentage of substance in product up to 15% (Gnew)	
Quantity used	n.a.	
Frequency and duration of use/exposure	It covers a daily exposure of up to 8 hours (unless otherwise	
	specified).	
Human factors not influenced by risk management	n.a.	
Other operating conditions affecting exposure	It requires the application of a suitable basic hygiene standards in	
other operating conditions directing exposure	the workplace.	
Exposure scenarios	Specific measures for risk management	
Relocation of bulk products; Discontinuous sampling process;	Ensure an extract ventilation system at the material transfer	
filling / preparing equipment from drums or containers	points and other openings	
Stock / batch transfers; filling / preparing equipment from	Ensure an extract ventilation system at the material transfer	
drums or containers; transfer of bulk products; dedicated	points and other openings	
structure	points and other openings	
Refueling	Ensure an adequate standard of controlled ventilation (10 to 15	
	air units per hour)	
General Exposure (closed systems); with sampling	Specific measures have not been identified	
General Exposure (closed systems); use in discontinuous	Specific measures have not been identified	
processes under containment with sampling		
Filling barrels and small containers; dedicated structure	Use pumps for drums. Make sure the operation is done outside.	
,	Use vapors recovery systems if necessary	
(closed systems) Use of fuel	Specific measures have not been identified	
(closed systems) Discontinuous process	Specific measures have not been identified	
Cleaning and maintenance of equipment; non-dedicated	Drain the system before opening or maintaining the equipment.	
structure such as sheltered fuel pumps	Wear a whole mask (EN140 compliant) with Type A or above	
·	filter.	
	Limit exposure by partial isolation of operations or equipment and	
	ensure proper ventilation of the extraction in case of openings.	
Cleaning and maintenance of equipment; non-dedicated		
structure such as externally fixed fuel pumps		
Storage; general exposures (closed systems)	Specific measures have not been identified	
Section 2.2	Environmental exposure control	
Product characteristics	The substance is formed by a single chemical entity	
	Mostly hydrophobic	
	Ready biodegradable	
Operating conditions	For outdoor use	
Quantity used		
Average daily consumption over a year for widely dispersed	4.33	
use (Kg / day)		
Frequency and duration of use		
Release Type	Continuous (FD2)	
• •	· · · · · · · · · · · · · · · · · · ·	

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Emission days (days/year)	365	
Other operational conditions affecting environmental	Utilizzare in sistemi aperti	
exposure	'	
Fraction released in the air from strongly dispersive use (only	1.00e-02	
regional)		
Fraction released in the discharge waters by strongly	1.00e-05	
dispersive use		
Fracture released on the surface of the water from strongly	1.00e-04	
dispersive use (only regional)		
Fraction released in the soil from strongly dispersive use	1.00e-05	
(only regional)		
RMMs		
Technical measures at the process level (source) to prevent	Procedures vary from site to site, so conservative process	
releases	emissions estimates are used	
Site technical conditions and measures to reduce or limit disc	harges, emissions into the air and releases into the ground	
Air	No air emission control required; Required removal efficiency of	
	0% (TCR5)	
Waste water	Treat wastewater on site (before getting to drain water) to ensure	
	the required removal efficiency> 37%.	
Ground	No soil emission control is required. The required removal	
	efficiency is 0%.	
Organizational measures to prevent / limit the release from	Prevent the release of undigested substances or their recovery	
the site	from wastewater.	
Conditions and measures for the municipal wastewater	It is assumed that the discharge flow from the industrial waste	
treatment plant	water treatment plant is 2000 m ³ / day.	
Conditions and measures related to the external treatment	n.a.	
of waste for disposal		
Conditions and measures for the external recovery of waste	n.a.	
Other environmental control measures than those above	None	

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3. Use in fuels - consumer

Title of exposure scenario		
Using TAME in fuels; CAS 91995-60-7		
Sector of use: consumer		
Process Category: PC13		
Environmental Release Category: ERC8d		
Environmental Release Category: ENCOC30 SpERC		
Using fuel for fueling in 2 and 4 stroke engines.		
Operating conditions and risk management measures		
Workers' exposure control		
Workers exposure control		
330 hPa at 25°C		
Liquid, vapor pressure> 10 kPa under standard conditions		
Diesel, containing <15% of the substance		
Up to 60 liters for refueling		
Up to 3 times a week		
Unless otherwise specified, room temperature is used (ConsOC15)		
nt		
Unless otherwise specified, it includes concentrations up to 15%;		
includes uses up to 150 days / year; includes uses up to 1 time per		
day of use; for every use, includes exposures up to 15 minutes per		
event.		
Environmental exposure control.		
The substance is formed by a single chemical entity		
Mostly hydrophobic		
Ready biodegradable		
For outdoor/indoor use		
g / 4.33		
.g / 4.33		
g / 4.33		
g / 4.33		
Dispersive use.		
Dispersive use. 365		
Dispersive use.		
Dispersive use. 365		
Dispersive use. 365 Use in open systems		
Dispersive use. 365 Use in open systems		
Dispersive use. 365 Use in open systems nly 1.00e-02		
Dispersive use. 365 Use in open systems nly 1.00e-02 se 1.00e-05		
Dispersive use. 365 Use in open systems nly 1.00e-02 se 1.00e-05		
Dispersive use. 365 Use in open systems nly 1.00e-02 se 1.00e-05 gly 1.00e-04		
Dispersive use. 365 Use in open systems nly 1.00e-02 se 1.00e-05 gly 1.00e-04		
Dispersive use. 365 Use in open systems nly 1.00e-02 se 1.00e-05 gly 1.00e-04		
Dispersive use. 365 Ital Use in open systems Inly 1.00e-02 Ital Use in open systems 1.00e-05 Ital Use in open systems 1.00e-05 Ital Use in open systems Ital Use in o		
Dispersive use. 365 Ital Use in open systems Inly 1.00e-02 Ise 1.00e-05 Igly 1.00e-04 Iuse 1.00e-05 Inde 1.00e-05 Inde 1.00e-05 Inde 1.00e-05 Inde 1.00e-05 Inde 1.00e-05		
Dispersive use. 365 Ital Use in open systems Inly 1.00e-02 Ise 1.00e-05 Igly 1.00e-04 Iuse 1.00e-05 Inde		
Dispersive use. 365 Ital Use in open systems Inly 1.00e-02 Ise 1.00e-05 Igly 1.00e-04 Ise 1.00e-05 In Procedures vary from site to site, so conservative process emissions estimates are used In Mair emission control required; Required removal efficiency of 0% Treat wastewater on site (before getting to drain water) to ensure		
Dispersive use. 365 Ital Use in open systems Inly 1.00e-02 Ise 1.00e-05 Igly 1.00e-04 Iuse 1.00e-05 Procedures vary from site to site, so conservative process emissions estimates are used Indicate the dispersion of the site of		

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Organizational measures to prevent / limit the release from the site	Prevent the release of undigested substances or their recovery from wastewater.
Conditions and measures for the municipal wastewater treatment plant	It is assumed that the discharge flow from the industrial waste water treatment plant is 2000 m ³ / day.
Conditions and measures related to the external treatment of waste for disposal	n.a.
Conditions and measures for the external recovery of waste	n.a.
Other environmental control measures than those above	None

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evaluation of health

ETHANOL

1. Industrial formulation and re-packaging of Ethanol and its mixtures

Section 1				
Title: Exposure scenario for industrial for	mulation and re	-packaging of Ethanol and it	s mixtures	
REACh Association for Ethanol No. ES3				
Systematic title based on usage descriptors		SU3, SU10, PROC3, PROC5,	PROC8a, PROC8b, PROC9, PROC14, ERC2	
Process, Assignments, Covered Activities		It covers the industrial for	mulation, packaging and re-packaging of the	
			s in discontinuous or continuous operations,	
			al transfer, mixing, small and large scale	
		packaging, maintenance. Includes the formulation of fuels containing		
		ethanol.		
Evaluation methodology		Integrated model Ecetoc TRA version 2.		
Exposure scenario				
Operating conditions and risk manageme		-1	atan and an all a material and the state of	
			gies related to the mixing of solid and liquid	
			significant contacts at each stage. Fill lines leakage. Sampling, loading, filling, transfer,	
			dust, vapor, aerosol or spill, and cleaning of	
equipment.	5 and not with t	the possibility of exposure to	aust, vapor, acrosor or spill, and dearling of	
	uction of Organ	nic and Inorganic Substance	s in the Chemical, Petrochemicals, Primary	
_	_	_	nuous or continuous processes by employing	
dedicated or multi-function tools, both co				
Number of sites using the substance: Subs	stance widely use	ed	·	
Evaluation method	-			
Workers' exposure control				
Product characteristics (Includes	Physical state	of the product	Liquid	
packaging design that influences	Concontration	of the substance into the	Up to 100%	
exposure)	product		op to 100%	
	Vapour pressure		5,73 kPa	
	•		3,73 Ki u	
Quantity used	n.a. in level 1 of model TRA			
Frequency and duration of use /		uency (weekly)	> 4 days/week	
exposure		uency (annual)	240 days/week	
	Durata dell'es		> 4 h/days	
Human factors not influenced by risk	Potentially exp	posed body parts	Two hands only the palm (automated	
management			processes / PROC3)	
	Evanced skin s	uurfa aa	Two hands (transfer, filling etc./PROC8a,b) 480 cm ² (automated processes / PROC3)	
	Exposed skin surface		960 cm ² (transfer, filling etc./PROC8a,b)	
Other operating conditions affecting	It requires the	application of a suitable has		
exposure	It requires the application of a suitable basic hygiene standards in the workplace			
·	Installation (indoor/outdoor) Outdoor			
Technical measures at the process level	Specific technical prevention measures are not required.			
(source) to prevent releases				
Technical measures and conditions to				
control dispersal from source to	good ventilation to the points where you check the emissions. Provide a standard voucher for general or controlled ventilation (5 to 15 air changes per hour).			
workers				
Measures and conditions to prevent /	No specific measure identified.			
limit releases, dispersion and exposure	·			
Conditions and measures related to	Eye protection - Eye protection should be used when handling the product if there is a			
personal protection, hygiene and	risk of spraying. Wear gloves tested according to EN374 during activities when skin			

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contact is possible.



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Environmental exposure contro)l			1		
		Physical state of the p		Liquid		
		Concentration of the substance into the product		Up to 100%		
Quantity used		'		n a		
Quantity useu		Daily at point source Annual at point source		n.a.		
		7 amadi de point 30dic	•	280,000 tons/year (worst scenario at point source)		
		Annual total			tons/year total market	
Frequency and duration of use	/	Release model		Continuous: 300 days/year		
exposure						
Environmental factors not influenced by risk management		Surface water reception capacity		18,000 m³/day (default)		
Other operating conditions affecting		Processing settings (inside / outside)		Inside		
environmental exposure		Process temperature		Room ten		
		Process pressure		Atmospheric pressure		
Technical measures at the proc	ess level				rea. Do not drain into drainage	
(source) to prevent releases					isposed as hazardous waste in	
			•	ws. Formul	ation activities are considered to	
Site technical conditions and n	nastirar	be mostly closed prod Apply technical measi		Efficiency	> 90%	
to reduce or limit discharges, e		reducing and cleaning		Linciency	× JU/0	
into the air and releases i		(wastewater treatme				
ground		wastewater treatment / local				
-		biological treatments)				
Organizational measures to pre	· ·		tewater directly into	Release o	f waste water into the local or	
limit the release from the site	the environment.			communal wastewater treatment p		
	nunicipal wastewater treatment plant		Size of the local wastewater treatment		> 2000 m³/day	
municipal wastewater treatmen			plant		000/15	
		Decrease of effectiveness		90% (for ethanol) Disposal or recovery		
		Sludge treatment	Incinoration or disc.			
Conditions and measures concerning waste treatment		ste treatment	fuels.	osai ot hazai	rdous waste for use in recycled	
Estimation of exposure						
Estimates of worker exposure a			RA v2 model. The exp	osure estim	nates below are based on PROC	
with an higher exposure level fo			I DNE		To .	
Worker exposure		ion of exposure	DNEL		Comments	
Inhalation (mg/m³)	96.04		950		The PROC8a results are the	
Skin(mg/Kg/day)	13.71		343		highest in this exposure	
Combined (mg/Kg/giorno)	27.43	is calculated using the	343		scenario.	
The Environmental Exposure Es (MC-Ib, IC-9, UC-27, the main so				iciuuliig the	tables A & B tables	
Ethanol is completely soluble in		•		does not ac	cumulate in sediments or soils	
and is presumed to degrade to 9						
Release Time per Year (Days	300		Local release in air (kg / day)		469	
/ Year)						
Fraction used at the local	0.1		Local release in wastewater		28	
main source			(kg / day)			
Quantities used locally (Kg /	93.333		Local release in soil (kg / day)		9	
day)	<u> </u>		BNIEG			
Environmental exposure	PEC 4.73		PNEC		Comments	
In the wastewater treatment	1.73		580		-	
plant / untreated wastewater (mg / I)						
11112 / 11	0.405		0.06			
	0,185		0,96			
In fresh water (mg/l)		ma/ka)	<u>'</u>	od	-	
	0,185 0.0117 (mg/kg)	0,96 0.63 (mg/kg of treat wastewater)	ed	-	

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Total quantity delivered daily through the local environment	Negligible if compared with diet intake and endogenous formation		
Downstream User Guide			
Workers' exposure and environmental emissions have been calculated using the Ecetoc TRA version 2. If the local environmental			
emission conditions deviate significantly from the default values used, please use the algorithm below to estimate the			
environmental impact, proper local emission and RCRs:			
PEC corrected = calculated PEC * local emission factor * localized discharge fraction of treated waste water * local river flow			
fraction * local efficiency of the purification plant.			
Additional suggestions beyond the assessment of chemical Use specific measures to reduce exposure beyond the			
safety	estimated exposure scenario whenever possible.		
Note: The measures outlined in this section have not been			
taken into account in the exposure estimation for exposure to			
the above scenario. They are not subject to the obligations			
under REACh Article 37 (4).			

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2. Use of ethanol as a fuel for automotive by consumers

Section 1			,	
Title: Exposure scenario for use of ethanol as a fuel for automotive by consumers				
REACh Association for Ethanol No. ES9a	oi as a fuel foi a	atomotive by consumers		
		CU21 DC12 EDC02 EDC0b		
Systematic title based on usage descriptors Processes, assignments, covered activities		SU21, PC13, ERC9a, ERC9b	aining athanal by consumors	
	5		aining ethanol by consumers.	
Evaluation methodology		Integrated Ecetoc TRA Version	on 2, Consexpo v 4.1	
Exposure scenario				
Operating conditions and risk manageme				
			pors is possible during refueling at the refueling	
			g the current use of fuel (engine operation) under	
the predictable conditions of use until the				
			ublic. Usage (generally) is the source of smaller	
releases through accidental spills and evap				
Number of sites using the substance: Subs	tance widely use	ea		
Workers' exposure control	C	af the annulus to the the a	It was a bishouthou 250/	
Content of the substance inside the		of the substance into the	It may e higher than 25%.	
product	product			
Quantity used	Up to 100 l		1	
Exposure / Release Fraction		th steam and reduced leakage		
Frequency and duration of use /	Frequency of 6	•	weekly	
exposure		tion per event	< 5 minutes (only during tank filling)	
External settings and conditions during	Outside			
use				
Technical conditions of use (relative to	No specific me	easures are required		
the product)				
Organizational protection measures for	No specific measures are required			
consumers, eg consumer				
recommendations and / or instructions				
for use, eg labeling				
Environmental exposure control	T =		T.,	
Product characteristics		of the product	Liquid	
		of the substance into the	It may be > 25%	
	product			
Quantity used	Daily at point		n.a.	
	Annual at poir	it source	n.a. (strongly dispersive use)	
	Annual total		3,800,000 tons/year total market for	
Francount and demaster of the 1	Dologge	1	industrial, professional and consumer use.	
Frequency and duration of use /	Release mode	I	Continuous: 365 days/year	
Environmental factors not influenced	Surface water	reception capacity	18,000 m³/day	
by risk management	Juliace Water	reception capacity	10,000 III-/ uay	
Other operating conditions affecting	Processing set	tings (inside / outside)	Outside	
Louis operating conditions affectiffs	・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・			
environmental exposure	Process tempe	erature	Room temperature	
environmental exposure	Process tempe Process pressu	erature ure	Room temperature Atmospheric pressure	
environmental exposure Conditions and measures for the	Process tempe Process pressu No release in	erature ire wastewater is expected from t	Room temperature Atmospheric pressure this use. The only forms of environmental release	
environmental exposure	Process tempe Process pressu No release in from the use	erature ure wastewater is expected from to of ethanol as fuel by cons	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	
environmental exposure Conditions and measures for the	Process tempe Process pressu No release in from the use operations (<0	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than	Room temperature Atmospheric pressure this use. The only forms of environmental release	
environmental exposure Conditions and measures for the municipal wastewater treatment plant	Process temper Process pressure No release in from the use operations (<0 liter tank for a	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than duration of 2-3 minutes).	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	
environmental exposure Conditions and measures for the municipal wastewater treatment plant Conditions and measures for waste	Process temper Process pressure No release in from the use operations (<0 liter tank for a	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	
environmental exposure Conditions and measures for the municipal wastewater treatment plant Conditions and measures for waste disposal resulting from the use of the	Process temper Process pressure No release in from the use operations (<0 liter tank for a	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than duration of 2-3 minutes).	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	
environmental exposure Conditions and measures for the municipal wastewater treatment plant Conditions and measures for waste	Process tempe Process presso No release in from the use operations (<0 liter tank for a No waste is ex	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than duration of 2-3 minutes).	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	
environmental exposure Conditions and measures for the municipal wastewater treatment plant Conditions and measures for waste disposal resulting from the use of the product	Process temper Process pressure No release in from the use operations (<0 liter tank for a	erature ure wastewater is expected from to of ethanol as fuel by const 0.01% assuming that less than duration of 2-3 minutes).	Room temperature Atmospheric pressure this use. The only forms of environmental release umers are related to evaporation during filling	

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			ted using the industrial model (draft
Estimation	of exposure	DNEL	Comments
35,00		LTS 206	
0,00		LTS 87	
1,54		LTS 144	
imation is b	ased on the Ecetoc T	RA v2 model based on custom settir	ngs and a total use of 3,800,000 tpa.
365		Local release in the air (kg/day)	n.a. widely dispersed
0.002		Local release in wastewater (kg/day)	n.a. widely dispersed
n.a.		Local release in the soil (kg/day)	n.a. widely dispersed
PEC		PNEC	Comments
0,065		580	-
0,0240		0,96	-
0,0273		0,63 (mg/kg of treated wastewater)	-
0,0034		0,79	-
ough the loc	al environment	Negligible if compared with diet in	take and endogenous formation
Additional suggestions beyond the assessment of chemical		Use specific measures to reduce ex	xposure beyond the estimated
		exposure scenario whenever possi	ble.
n this section	on have not been		
ure estimati	on for exposure to		
not subject	to the obligations		
	Estimation 35,00 0,000 1,54 Estimation is based 365 0.002 n.a. PEC 0,065 0,0240 0,0273 0,0034 ough the location is based on this section is based on the section	CSA (PC13, Automobile, 100% content of exposure and associated aso	35,00 LTS 206 0,00 LTS 87 1,54 LTS 144 Limation is based on the Ecetoc TRA v2 model based on custom setting 365 Local release in the air (kg/day) 0.002 Local release in wastewater (kg/day) n.a. Local release in the soil (kg/day) PEC PNEC 0,065 580 0,0240 0,96 0,0273 0,63 (mg/kg of treated wastewater) 0,0034 0,79 ough the local environment wastewater) 1,0034 0,79 Ough the local environment wastewater) 1,0034 0,79 Ough the local environment wastewater) 1,0034 0,79 Ough the sessesment of chemical wastewater) 1,0034 0,79 Ough the sessesment of chemical wastewater) 1,0034 0,79 Ough the local environment wastewater wastewater) 1,0034 0,79 Ough the local environment wastewater wastewater) 1,0034 0,79 Ough the sessesment of chemical wastewater wastewater wastewater) 1,0040 0,96 0,0273 0,63 (mg/kg of treated wastewater) 1,0079 0,79 Ough the local environment wastewater wastewater wastewater (segional release in the soil (kg/day)

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TOLUENE

1. Formulation or re-packaging of toluene and its mixtures

Section 1			
Title: Exposure scenario for formulation or	re-packaging of	toluene and its mixtures	
REACh Association for Toluene No. ES21			
,		SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, ERC2	
Processes, assignments, covered activities		and its mixtures in discor storage, material transfe	packaging and re-packaging of the substance atinuous or continuous operations, including r, mixing, small to large scale packaging, ory connected. Includes the formulation of
Evaluation methodology			e of predetermined ESVOC SpERC release
Exposure scenario			
Operating conditions and risk managemen	t measures		
materials, and where the process is phase-designed to capture both vapor and aerosc dedicated structures and not with the possi Environmental Release Categories: Product	out and provides to a missions and mand in the little of exposure to or of Organic areas and Monomethe point of technic are to of technic and mand the point of technical and mand the point of technical and mand mand the point of technical and mand mand the point of technical and mand the point of the	the opportunity for significal ninimize leakage. Sampling, l to dust, vapor, aerosol or sp nd Inorganic Substances in the ers, using discontinuous or c	he Chemical, Petrochemicals, Primary Metals ontinuous processes by employing dedicated
Evaluation method	ance widely used		
Workers'exposure control			
Product Characteristics (Includes	Physical state o	f the product	Liquid
packaging design that influences exposure)	Concentration of product	of the substance into the	Up to 100%
	Vapour pressur	e of the substance	0,5 <x<10 (oc4)<="" kpa="" td=""></x<10>
Quantity used	15.000 tons/yea	ar	
Frequency and duration of use /	Frequency of ex	(posure (weekly)	> 5 days/week
exposure	Frequency of ex	(posure (annual)	300 days/year
	Duration of exp	osure	<8 h/days
Human factors not influenced by risk management	n.a.		
Other operating conditions affecting exposure	It assumes that the product is used at a temperature not exceeding 20 ° C compared to room temperature, unless otherwise specified (G15). It requires the application of a suitable basic hygiene standards in the working environment (G1). It is recommended that users take into consideration exposure limits in the workplace of other equivalent values (G38).		
Technical measures at the process level (source) to prevent releases	Do not distribute the sludges generated by the treatment of industrial waters on natural soils (OMS2)		
Technical measures and conditions to control dispersal from source to workers	, , ,		ding to EN 374) in case of possible contact purities / spills of the product as soon as they amination with the skin. Perform basic staff any skin problems (E3) are reported. ther significant aerosol exposure): other skin its and visors will be required during high

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		Company assessment from the state of the	a banand avalitativa aggressive	
		General measures for assessing the suction hazard-qualitative assessment: do not swallow. Implement a basic occupational hygiene standard. Avoid contact with		
		contaminated tools and objects. Management / Supervision to ensure that implemente		
		RMMs are used correctly and that OCs are properly executed. Staff training on good		
	.,	practices. Adequate personal hygiene standard.		
Measures and conditions to pre		No specific measure identified.		
limit releases, dispersion and ex				
Conditions and measures re			e used when handling the product if there is a	
personal protection, hygiene a	nd nealth		cording to EN374 during activities when skin	
assessment		contact is possible.		
Environmental exposure contro			A P 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Product characteristics		Physical state of the product	Medium volatility liquid. Water solubility	
			is 573 mg / I; the vapor pressure is 4030	
			Pa at 20 ° C; Kow log is 2.73. It is easily	
			biodegradable	
		Concentration of the substance into the	Up to 100%	
		product		
Quantity used		Annual total	15.000 tons/year	
Frequency and duration of use /	,	Release models	Continuous: 300 days/year	
exposure				
Environmental factors not influe	enced by	Dilution Factors in Freshwater	10	
risk management		Dilution factors in sea water	100	
Other operating conditions affecting		None		
environmental exposure				
Site technical conditions and measures		Treating air emissions to ensure a typical i		
to reduce or limit discharges, emissions		The typical on-site wastewater treatment	technology provides 93.3% removal efficiency,	
into the air and releases into the ground				
Organizational measures to pre-	vent /		the treatment of industrial waters on natural	
limit the release from the site		soils		
Conditions and measures for the	_	Size of the local wastewater treatment	2000 m³/day	
municipal wastewater treatmer	ıt plant	plant		
		Estimated removal of the substance from 93,3%		
		wastewater		
Conditions and measures conce	rning	Waste collection and recycling must comply with applicable local and / or national		
waste treatment		legislation (ERW1)		
Estimation of exposure				
Estimates of worker exposure ar		d using the Ecetoc TRA v2 model.		
	Type of a	-	industrial	
	Dustiness		Low (liquid substance)	
	Duration of exposure		15 min – 1 h/day	
	Use of ventilation		Provide a general standard of general	
			ventilation for manual mixing / transfer /	
General parameters used			pouring operations or open-air systems at	
			room temperature.	
			No one for closed systems	
		ratory protection	None	
	Use of ski	n protection	None	
		ation in preparations	>25%	
When recommended risk manage	romont mor	scures (BNANAs) and enerating conditions (O)	Tare observed exposures should not exceed	

When recommended risk management measures (RMMs) and operating conditions (OC) are observed, exposures should not exceed DNELs and the resulting risk characterization ratio should be less than 1. (General Exposures in Closed Systems - None measure to be implemented - RCR in. = 0.00, RCR der. = 0.00; General exposures in closed systems with sample collection, with occasional controlled exposure - no action to be taken - RCR in. = 0.20, RCR der. = 0.00; General Exposure in closed systems, use in batch systems with containment - no measures to be implemented - RCR in. = 0.49, RCR der. = 0.00; General exposures in open systems, use in batch systems with sample collection, with potential aerosol generation - no measure to be implemented - RCR in = 0.39, RCR der = 0.02; Mixing operations in open systems with potential aerosol generation - Provide a standard voucher general air conditioning (no less than 3-5 air units per hour) - RCR in. = 0.69, RCR der. = 0.04; Filling in drums and small packagings - Provide a general standard of general ventilation (no less than 3-5 air units per hour) - RCR in. = 0.69, RCR der. = 0.02; Cleaning and maintenance of equipment - Drain and bleed the system before opening or maintaining the equipment - RCR in. = 0.10, RCR der. = 0.00; Storage, with occasional

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controlled exposure - no action to be taken - RCR in. = 0.20, RCR der. = 0.00;

The **Environmental Exposure Estimate** is calculated using the EUSES 2.1.1 model with the use of ESVOC SpERC (2.2.v1) predetermined release fractions,

When recommended risk management measures (RMM) and operating conditions (OC) are observed, exposures should not exceed PNECs and the resulting risk characterization ratio should be less than 1 (fresh water RCR 4.95E-01; RCR marine water 4.95E-02; RCR fresh water sediments 4.95E-01; RCR marine sediment 4.94E-02; RCR soil 7.38E-01; RCR STP 2.46E-01)

Guida per gli utilizzatori a valle

Environmental exposure.

The guide line is based on assumed conditions of use that may not apply to all sites; then a scaling operand may be needed to define adequate risk management measures for each site (DSU1).

The required efficiency of wastewater removal can be achieved by using onsite technologies, individually or in combination (DSU2).

The required efficiency of air removal can be achieved by using onsite technology, individually or in combination (DSU3).

Further information on scaling activities and control technologies is provided by the SpERC Technical Data Sheets (http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3) (DSU4)

Workers Exposure

If different RMM / OCs are adopted, the user must ensure that the risks are controlled at least at an equivalent level. (G23)
Risk Characterization Reports (RCRs) are computed by comparing the estimated exposure levels with the corresponding DNELs (RCR = exposure level / DNEL)

Additional suggestions beyond the assessment of chemical safety

Note: The measures outlined in this section have not been taken into account in the exposure estimation for exposure to the above scenario. They are not subject to the obligations under REACh Article 37 (4).

Use specific measures to reduce exposure beyond the estimated exposure scenario whenever possible.

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XYLENE – All isomers

1. Use of Xylene and its mixtures as fuel

Section 1			
Title Exposure scenario for use of xylene a	nd its mixtures as	fuel	
Reference REACh Association for Xylene No	o. ES7		
		SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16, ERC7	
Processes, assignments, covered activities			uel (or fuel additive) and includes activities s use, maintenance of equipment and waste
		handling.	
Evaluation methodology		Model ESVOC SpERC 7.12	a.v1
Exposure scenario			
Operating conditions and risk managemen	nt measures		
Treat air emissions in such a way as to ensu	ıre a typical elimir	nation efficiency of> 90%.	
Typical wastewater treatment technologies	s in place ensure a	93.67% elimination efficier	ncy.
Prevent unloading of untreated waste into	waste water or re	trieve it from the site itself.	
Emission control in the soil is not applicable		no direct emission into the	soil.
Do not shed industrial sludges on natural se			
The purification mud should be incinerated		ainers or recovered.	
Number of sites using the substance: Subst	ance widely used		
Evaluation method			
Workers' exposure control			
Product characteristics (Includes	Physical state o	f the product	Liquid
packaging design that influences	Concentration	of the substance into the	Up to 100%
exposure)	product	or the substance into the	op to 100%
		e of the substance	0,5 <x<10 kpa<="" td=""></x<10>
	vapour pressur	e or the substance	0,5 % (10 Kr d
Quantity used	n.a.		
Frequency and duration of use /	Frequency of exposure (weekly)		>5 days/week
exposure		rposure (annual)	300 days/year
	Duration of exposure		<8 h/day
Human factors not influenced by risk management	n.a.		
Other operating conditions affecting exposure	otherwise indicated. It is assumed that a good basic level of work hygiene is implemented. Contributing Scenarios-Operating Conditions and Risk Management Measures Bulk transfers Ensure a good level of general ventilation (no less than 3-5 air units per hour). Transfers in barrels / lot Ensure a good level of general ventilation (no less than 3-5 air units per hour). Avoid doing activities that involve an exposure greater than one hour. General Exposure (Open Systems) No other specific measure identified. General Exposure (closed systems) Ensure a good level of controlled ventilation (10-15 air units per hour) General Exposures (Open Systems) Lot Process Ensure a good level of controlled ventilation (10-15 air units per hour) General Exposures (closed systems) batch process Ensure a good level of controlled ventilation (10-15 air units per hour)		no less than 3-5 air units per hour). no less than 3-5 air units per hour). Avoid reater than one hour. on (10-15 air units per hour) ess on (10-15 air units per hour) process
	Maintenance of equipment Drain and flush system prior to injecting and maintenance of equipment. Keep liquids in sealed containers awaiting disposal and for subsequent recycling Cleaning Ensure ventilation / extraction at the points where it is emitted storage		al and for subsequent recycling

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	No other specific measure identified		
	Waste disposal Ensure a good level of general ventilation (no less than 3-5 air units per hour). Avoid		
	doing activities that involve an exposure greater than one hour.		
Technical measures at the process level	Do not shed industrial sludges on natural soil.		
(source) to prevent releases	The purification mud should be incinerated,		
Technical measures and conditions to	Laboratory activities		
control dispersal from source to workers	Wear suitable gloves conforming to EN374	. Wear a suitable work suit to prevent skin	
·	exposure.	•	
	Bulk transfers		
	Wear suitable gloves conforming to EN	374. Avoid sketches. Clean lines before	
	decoupling. Transfer to bins / lot		
	Wear suitable gloves conforming to EN	374. Avoid sketches. Clean lines before	
	decoupling.		
	Cleaning and maintenance equipment		
	Wear a suitable work suit to prevent skin exp	oosure.	
	Storage		
Measures and conditions to prevent /	Avoid immersion sampling. No further specific measure identified.		
limit releases, dispersion and exposure	ivo raither specific measure lucitimeu.		
Conditions and measures related to	Wear tested gloves according to EN374 stan	dard and suitable work suit during activities	
personal protection, hygiene and health	when skin contact is possible		
assessment			
Environmental exposure control		T	
Product characteristics	Physical state of the product	Medium volatility liquid. Predominantly hydrophobic. Easily biodegradable. Water	
		solubility is 166 mg / l; the vapor pressure	
		is 821 Pa at 20 ° C; the Kow log is 3.16.	
	Concentration of the substance into the	Up to 100%	
	product		
Quantity used	Annual total	50.000 tons/year	
Frequency and duration of use /	Release models	Continuous: 300 days/year	
exposure Environmental factors not influenced by	Dilution Factors in Freshwater	10	
risk management	Dilution factors in resilwater	100	
Other operating conditions affecting	Process release fraction in air (initial release	before RMM): 1	
environmental exposure	Process release fraction in waste water (initial	al release before RMM): 0.00001	
	Process release fraction in soil (initial release before RMM): 0		
Site technical conditions and measures	Treat air emissions in such a way as to ensur		
to reduce or limit discharges, emissions into the air and releases into the ground	Typical wastewater treatment technologies in place ensure a 93.67% eliminatio		
into the an and releases into the ground	efficiency. Prevent unloading of untreated waste into	vaste water or retrieve it from the site itself.	
	Emission control in the soil is not applicable		
	soil.		
	Do not shed industrial sludges on natural soi		
Organizational measures to prevent /	The purification mud should be incinerated, Do not shed industrial sludges on natural soi		
limit the release from the site	The purification mud should be incinerated,		
Conditions and measures for the	Size of the local wastewater treatment	2000 m³/day	
municipal wastewater treatment plant	plant		
	Estimated removal of the substance from	93,3%	
	wastewater		
Conditions and measures concerning	Waste collection and recycling must comply	with applicable local and / or national	
waste treatment	legislation		
Estimation of exposure			

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Estimates of worker exposure are calculated using the Ecetoc TRA v2 model.		
	Type of activity	industrial
	Dustiness	Low (liquid substance)
Conoral parameters used	Duration of exposure	<15 min /day
General parameters used	Use of ventilation	None
	Use respiratory protection	None
	Use of skin protection	None

The assessment of the environmental and human exposure is calculated with the EUSES model

Estimation of exposure and reference to its source (environment): Exposures are modest and do not exceed the limit values. Estimation of exposure and reference to its source (human): The ECETOC TRA tool was used to estimate workplace exposures

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Environment

Health

The indications are based on the alleged operational conditions, which may not apply to all sites; therefore, it is necessary to apply a scale factor to define appropriate site-specific risk management measures.

The elimination efficiency required for waste water can be achieved by using on / off site technologies alone or in combination. The elimination efficiency required for the air can be obtained using on-site technologies, alone or in combination. Further details on scale factors and control technologies in the SpERC Information Document.

Expected exposures should not exceed DN (M) EL when implementing the risk management measures / operating conditions described in "Exposure Control". Where other risk / operational risk management measures are taken, users must ensure that risks are managed at least equivalent levels. Bisk management measures are based on qualitative risk characterization.

are managed at least equivalent levels. Risk management measures are based on qualitative risk characterization.		
Additional suggestions beyond the	Use specific measures to reduce exposure beyond the estimated exposure scenario	
assessment of chemical safety	whenever possible.	
Note: The measures outlined in this		
section have not been taken into account	ount	
in the exposure estimation for exposure		
to the above scenario. They are not		
subject to the obligations under REACh		
Article 37 (4).		

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2. Formulation or re-packaging of xylene and its mixtures

Section 1			
Title Exposure scenario for formulation or		ylene and its mixtures	
Reference REACh Association for Xylene N	o. ES7		
Systematic title based on usage descripto	rs	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, ERC2	
Processes, assignments, covered activities	5	mixtures in batch or cont	and re-packaging of the substance and its inuous operations, including storage, transfe
			ting, pressing, pelleting, extrusion, large and mpling, maintenance and related laborator
Evaluation methodology		EUSES model with use of E	ECETOC TRA to estimate workplace exposures
Exposure scenario	"		· ·
Operating conditions and risk manageme	nt measures		
Treat air emissions in such a way as to ens		ation efficiency of> 90%.	
Typical wastewater treatment technologie			ncy.
Prevent unloading of untreated waste into	waste water or ref	trieve it from the site itself.	
Emission control in the soil is not applicable		no direct emission into the	soil.
Do not shed industrial sludges on natural s			
The purification mud should be incinerated	· ·	ainers or recovered.	
Number of sites using the substance: Subs	tance widely used		
Evaluation method			
Workers' exposure control	T		
Product characteristics (Includes	Physical state of	f the product	Liquid
packaging design that influences exposure)	Concentration o	of the substance into the	Up to 100%
	<u>'</u>	e of the substance	0,5 <x<10 kpa<="" td=""></x<10>
Quantity used	n.a.		
Frequency and duration of use /	Frequency of ex	posure (weekly)	>5 days/week
exposure	Frequency of ex	posure (annual)	300 days/year
	Duration of expo	osure	<8 h/day
Human factors not influenced by risk management	n.a.		
Other operating conditions affecting	It is assumed that	at use does not exceed 20 °	C above room temperature, unless
exposure	otherwise indica		
		at a good basic level of wor	
	_	enarios-Operating Condition	ns and Risk Management Measures
	Bulk transfers	orial transfors are in confin	ement or ventilation / extraction
	Transfers in bar		ement of ventuation / extraction
			n (10-15 air units per hour).
	_	re (closed systems)	(10 15 an anno per noar).
	•	substance within a closed s	ystem.
		re (closed systems) with sar	
	Manipulate the substance within a closed system.		
		res (closed systems) use in l	
	Manipulate the substance within a closed system.		
	Ensure a good level of general ventilation (no less than 3-5 air units per hour).		
			rocess with sample collection
	_		no less than 3-5 air units per hour).
	_	aintenance of equipment	
		system prior to injecting an	d maintenance of equipment.
	storage		
	NA - a la colo - a - a l	and a same and a state to a section of	
		substance within a closed sigh temperature	ystem.

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	ventilation (no less than 3-5 air units per hou	ır).	
	Process sampling Manipulate the substance within a closed system		
	Manipulate the substance within a closed sys		
	Ensure a good level of general ventilation (no Laboratory activities	diess than 3-5 air units per nour).	
	No other specific measure identified. Spraying operations (open systems) Ensure a good level of controlled ventilation (10-15 air units per hour).		
	Manual Transfer / Pour From Containers	(15 15 dir dirits per riodi).	
	Ensure a good level of controlled ventilation	(10-15 air units per hour).	
	Production of prepared or articles by tabletting, compressione, extrusion of		
	Ensure a good level of controlled ventilation	(10-15 air units per hour).	
	Filling with drums and small holes		
	Ensure a good level of controlled ventilation		
Technical measures at the process level	Do not shed industrial sludges on natural soi		
(source) to prevent releases	The purification mud should be incinerated,	enclosed in containers or recovered.	
Technical measures and conditions to	Laboratory activities		
control dispersal from source to workers	-	. Wear a suitable work suit to prevent skin	
	exposure.		
	Bulk transfers		
	Wear suitable gloves conforming to EN	3/4. Avoid sketches. Clean lines before	
	decoupling.		
	Transfer to bins / lot Wear suitable gloves conforming to EN	374 Avoid sketches Clean lines hefore	
	decoupling.	374. Avoid Sketches. Clean lines before	
	Cleaning and maintenance equipment		
	Wear a suitable work suit to prevent skin exposure.		
	Storage		
	Avoid immersion sampling.		
Measures and conditions to prevent /	No further specific measure identified.		
limit releases, dispersion and exposure			
Conditions and measures related to	Wear tested gloves according to EN374 standard and suitable work suit during activities		
personal protection, hygiene and health	when skin contact is possible		
assessment			
Environmental exposure control		T	
Product characteristics	Physical state of the product	Medium volatility liquid. Predominantly	
		hydrophobic. Easily biodegradable. Water	
		solubility is 166 mg / l; the vapor pressure is 821 Pa at 20 ° C; the Kow log is 3.16.	
	Concentration of the substance into the	Up to 100%	
	product	Op to 100%	
Quantity used	Annual total	1.000.000 tons/year	
Frequency and duration of use /	Release models	Continuous: 300 days/year	
exposure		, , ,	
Environmental factors not influenced by	Dilution Factors in Freshwater	10	
risk management	Dilution factors in sea water	100	
Other operating conditions affecting	Process release fraction in air (initial release		
environmental exposure	Process release fraction in waste water (initi		
	Process release fraction in soil (initial release		
Site technical conditions and measures	Treat air emissions in such a way as to ensur		
to reduce or limit discharges, emissions	Typical wastewater treatment technologic	es in place ensure a 93.67% elimination	
into the air and releases into the ground	efficiency.	rosto water or retrieve it from the site its off	
	Prevent unloading of untreated waste into w		
	Emission control in the soil is not applicable soil.	because there is no unect emission into the	
	Do not shed industrial sludges on natural soi	ls.	
	The purification mud should be incinerated,		
	parmeation mad should be memerated,		

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Organizational measures to pre	vent / Do not shed industrial sludges on natural		il.
limit the release of the site		The purification mud should be incinerated,	enclosed in containers or recovered.
Conditions and measures for the municipal wastewater treatment plant		Size of the local wastewater treatment plant	2000 m³/day
		Estimated removal of the substance from wastewater	93,3%
Conditions and measures concerning		Waste collection and recycling must comply	with applicable local and / or national
waste treatment		legislation	
Estimation of exposure			
Estimates of worker exposure a	re calculate	d using the Ecetoc TRA v2 model.	
	Type of a	ctivity	industrial
	Dustiness		Low (liquid substance)
Conoral parameters used	Duration	of exposure	<15 min /day
	Use of ve	ntilation	None
	Use respi	ratory protection	None
	Use of ski	in protection	None
The accessor and of the amilianus		human aveasure is coloulated with the FLICE	`

The assessment of the environmental and human exposure is calculated with the EUSES model

Estimation of exposure and reference to its source (environment): Exposures are modest and do not exceed the limit values. Estimation of exposure and reference to its source (human): The ECETOC TRA tool was used to estimate workplace exposures

Downstream User Guide

Environment

The indications are based on the alleged operational conditions, which may not apply to all sites; therefore, it is necessary to apply a scale factor to define appropriate site-specific risk management measures.

The elimination efficiency required for waste water can be achieved by using on / off site technologies alone or in combination. The elimination efficiency required for the air can be obtained using on-site technologies, alone or in combination. Further details on scale factors and control technologies in the SpERC Information Document.

Health

Expected exposures should not exceed DN (M) EL when implementing the risk management measures / operating conditions described in "Exposure Control". Where other risk / operational risk management measures are taken, users must ensure that risks are managed at least equivalent levels. Risk management measures are based on qualitative risk characterization.

Additional suggestions beyond the	Use specific measures to reduce exposure beyond the estimated exposure scenario
assessment of chemical safety	whenever possible.
Note: The measures outlined in this	
section have not been taken into account	
in the exposure estimation for exposure	
to the above scenario. They are not	
subject to the obligations under REACh	
Article 37 (4).	

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CYCLOHEXANE

1. Use of cyclohexane and its mixtures as fuel

Section 1				
Title Exposure scenario for use of cyclohexar		re as fuel		
Reference REACh Association for Cyclohexane	No. ES7			
Systematic title based on usage descriptors		SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16, ERC7		
Processes, assignments, covered activities		It applies to use as a fuel (or fuel additive) and includes activities		
			use, maintenance of equipment and waste	
		handling.		
Evaluation methodology		Model ESVOC SpERC 7.12a	.v1	
Exposure scenario				
Operating conditions and risk management				
Treat air emissions in such a way as to ensure				
Emission control in the soil is not applicable b		no direct emission into the s	oil.	
Do not shed industrial sludges on natural soils				
The purification mud should be incinerated, e		ainers or recovered.		
Number of sites using the substance: Substan	ce widely used			
Evaluation method				
Workers' exposure control	Ι			
Product Characteristics (Includes	Physical state	of the product	Liquid	
packaging design that influences	Concentration	of the substance into the	Up to 100%	
exposure)	product			
	Vapour pressure of the substance		>10 kPa	
Quantity used	n.a.			
Frequency and duration of use / exposure	Frequency of	exposure (weekly)	>5 days/week	
. ,		exposure (annual)	300 days/year	
	Duration of ex		<8 h/day	
Human factors not influenced by risk management	n.a.			
Other operating conditions affecting	It is assumed t	that use does not exceed 20	° C above room temperature, unless	
exposure	otherwise indicated.			
	It is assumed that a good basic level of work hygiene is implemented.			
	Contributing Scenarios-Operating Conditions and Risk Management Measures			
	Bulk transfers			
	No other specific measure identified.			
		Transfers in barrels / lot		
	No other specific measure identified.			
	General Exposure (Open Systems) Lot Process			
	No other specific measure identified.			
	General Exposures (closed systems) batch process			
	No other specific measure identified. Cleaning and maintenance of equipment			
	Ensure ventilation / extraction at the points where it is emitted. Drain the system			
	before stopping and maintenance of equipment.			
	Storage			
	No other specific measure identified			
Technical measures at the process level	Do not shed industrial sludges on natural soil.			
(source) to prevent releases	The purification mud should be incinerated, enclosed in containers or recovered.			
Technical measures and conditions to	Laboratory activities			
control dispersal from source to workers	Wear suitable gloves conforming to EN374. Wear a suitable work suit to prevent skin			
-	exposure.			
	Bulk transfers			

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		deservation	1	
		decoupling.		
		Transfer to bins / lot		
		Wear suitable gloves conforming to EN374. Avoid sketches. Clean lines before		
		decoupling.		
		Cleaning and maintenance equipment	ovnocuro	
		Wear a suitable work suit to prevent skin	exposure.	
		Storage Avoid immersion sampling.		
Measures and conditions to pre	vent / limit	No further specific measure identified.		
releases, dispersion and exposu		No further specific measure facilities.		
Conditions and measures		Wear tested gloves according to FN3	74 standard and suitable work suit during	
personal protection, hygiene		activities when skin contact is possible	or standard and santazie from sait daming	
assessment		, p		
Controllo dell'esposizione ambie	entale			
Product characteristics		Physical state of the product	Liquid. Mostly hydrophobic. Easily	
			biodegradable. Solubility in water is 52	
			mg / I; the vapor pressure is 124 hPa at 24	
			°C; the Kow log is 3.44.	
		Concentration of the substance into the	Up to 100%	
		product		
Quantity used		Annual total	1900 tons/year	
Frequency and duration of use /		Release models	Continuous: 100 days/year	
Environmental factors not influe	enced by	Dilution Factors in Freshwater	40	
risk management		Dilution factors in sea water 100		
Other operating conditions affe	cting	Process release fraction in air (initial rele	•	
environmental exposure		Process release fraction in waste water (initial release before RMM): 0.05		
		Process release fraction in soil (initial release before RMM): 0.05		
		Treat air emissions in such a way as to ensure a typical elimination efficiency of> 90%.		
reduce or limit discharges, em		Emission control in the soil is not applicable because there is no direct emission into		
the air and releases into the gro	una	the soil.		
		Do not shed industrial sludges on natural		
Ouganizational massures to mus	rome / limeis	The purification mud should be incinerated, enclosed in containers or recovered.		
Organizational measures to pre- the release from the site	vent / iimit	Do not shed industrial sludges on natural soil. The purification mud should be incinerated, enclosed in containers or recovered.		
Conditions and measures for the	a municinal	Size of the local wastewater treatment	2000 m³/day	
wastewater treatment plant		plant	2000 111 / day	
wastewater treatment plant		Estimated removal of the substance from	93,3%	
		wastewater	33,370	
			ply with applicable local and / or national	
waste treatment		legislation		
Estimation of exposure				
Estimates of worker exposure ar	e calculated ı	using the Ecetoc TRA v2 model.		
Type of act		1	industrial	
Di Di	Dustiness		Low (liquid substance)	
	Duration of exposure		<15 min /day	
General parameters used	Use of vent		None	
			None	
Use of skin			None	
The assessment of the environmental and human exposure is calculated with the EUSES model				
Fatimentia and commence and conference		, , , , , ,		

Estimation of exposure and reference to its source (environment): Exposures are modest and do not exceed the limit values. Estimation of exposure and reference to its source (human): The ECETOC TRA tool was used to estimate workplace exposures

Downstream User Guide

Environment

The indications are based on the alleged operational conditions, which may not apply to all sites; therefore, it is necessary to apply a scale factor to define appropriate site-specific risk management measures.

The elimination efficiency required for waste water can be achieved by using on / off site technologies alone or in combination. The elimination efficiency required for the air can be obtained using on-site technologies, alone or in combination. Further details on scale factors and control technologies in the SpERC Information Document.

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Health

Expected exposures should not exceed DN (M) EL when implementing the risk management measures / operating conditions described in "Exposure Control". Where other risk / operational risk management measures are taken, users must ensure that risks are managed at least equivalent levels. Risk management measures are based on qualitative risk characterization.

Additional suggestions beyond the assessment of chemical safety

Note: The measures outlined in this section have not been taken into account in the exposure estimation for exposure to the above scenario. They are not subject to the obligations under REACh Article 37 (4).

Use specific measures to reduce exposure beyond the estimated exposure scenario whenever possible.

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2. Formulation or re-packaging of Cyclohexane and its mixtures

Section 1				
Title Exposure scenario for formulation or re	e-packaging of	cyclohexane and its mixture	s	
Reference REACh Association for Cyclohexane				
Systematic title based on usage descriptors		SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, ERC2		
Processes, assignments, covered activities		It applies to use as a fuel (or fuel additive) and includes activities related to its transfer, its use, maintenance of equipment and waste		
		handling.		
Evaluation methodology		SPERC ESVOC SpERC 2.2.v1		
Exposure scenario				
Operating conditions and risk management				
Prevent unloading of untreated waste into wa		retrieve it from the site itself	•	
Do not shed industrial sludges on natural soil.				
The purification mud should be incinerated, e				
If discharged into a domestic water purification		the required waste water el	limination efficiency> 96.6%	
Number of sites using the substance: Substan	ce widely used			
Evaluation method				
Workers' exposure control	1			
Product characteristics (Includes packaging	Physical state	of the product	Liquid	
design that influences exposure)	Concentration of the substance into the product		Up to 100%	
	Vapour pressure of the substance		>10 kPa	
Quantity used	n.a.			
Frequency and duration of use / exposure	Frequency of	exposure (weekly)	>5 days/week	
	Frequency of	exposure (annual)	300 days/year	
	Duration of ex	xposure	<8 h/day	
Human factors not influenced by risk management	n.a.			
Other operating conditions affecting	It is assumed	that use does not exceed 20	° C above room temperature, unless	
exposure	otherwise ind	licated.		
	It is assumed	that a good basic level of wo	rk hygiene is implemented.	
	Contributing Scenarios-Operating Conditions and Risk Management Measures			
	Bulk transfers	3		
	No other specific measure identified.			
	Transfers in barrels / lot			
		cific measure identified.		
	Transfer / pour from manual containers			
	Ensure ventilation / extraction of the points in the which you have emissions.			
	General Exposure (Open Systems) batch process with sample collection spraying No other specific measure identified. General Exposure (closed systems) No other specific measure identified. Cleaning and maintenance of equipment Drain and flush system prior to injecting and maintenance of equipment.			
	storage No other specific measure identified.			
	Batch process high temperature			
	No other specific measure identified.			
	Process sampling			
	No other specific measure identified. Laboratory activities No other specific measure identified. Mixing operations (open systems) spraying			
Ensure ventilation / extraction at the points where it is emitted.			ts where it is emitted.	
	Filling with drums and small holes			

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Ensure a good level of general ventilation (no less than 3-5 air units per hour). Production of prepared or articles by tabletting, compression, extrusion or pelletising Ensure a good level of general ventilation (no less than 3-5 air units per hour). Technical measures at the process level (source) to prevent releases Fechnical measures and conditions to Prevent unloading of untreated waste into waste water and retrieve it from the site itself. Technical measures and conditions to to control dispersal from source to workers Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to personal protection, hygiene and health assessment Controllio dell'esposizione ambientale Product characteristics Wear tested gloves according to the tRN374 standard and suitable work suit during the activities when skin contact is possible. No further specific measure identified. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the Kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c, the kevo leg is 3.44. Concentration of the substance into the product biologgradable. Solubility in water is 52 mg / t, the vapor pressure is 224 hPa at 24 c/c,			l = 11 1 A		
Ensure a good level of general ventilation (no less than 3-5 air units per hour).					
Do not shed industrial sludges on natural soil. Frequency and department of the substance into the substance into the support of the substance into waste water and retrieve it from the site isself. Do not shed industrial sludges on natural soil. The purification mud should be incinerated, enclosed in containers or recovered. Freenance Prevent unloading of untreated waste into waste water and retrieve it from the site isself.					
The purification mud should be incinerated, enclosed in containers or recovered. Prevent unloading of untreated waste into waste water and retrieve it from the site itself. Technical measures and conditions to control dispersal from source to workers Measures and conditions to prevent / limit itself. Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to greatly required when handling or using this product. Wear tested gloves according to the EN374 standard and suitable working suit during the activities when skin contact is possible. Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to greatly required with handling or using this product. Wear tested gloves according to EN374 standard and suitable work suit during activities when skin contact is possible. Product characteristics Physical state of the product Controllo dell'esposizione ambientale Product characteristics Physical state of the product Concentration of the substance into the product I (upid. Mostly hydrophobic. Easily biodegradable. Solubility in water is 52 mg /); the vapor pressure is 124 hPa at 24 rec., the Kow log is 3.44. Concentration of the substance into the product I (upid. Mostly hydrophobic. Easily biodegradable. Solubility in water is 52 mg /); the vapor pressure is 124 hPa at 24 rec., the Kow log is 3.44. Concentration of the substance into the product I (upid. Mostly hydrophobic. Easily biodegradable. Solubility in water is 52 mg /); the vapor pressure is 124 hPa at 24 rec., the Kow log is 3.44. Concentration of the substance into the product I (upid. Mostly hydrophobic. Easily biodegradable. Solubility in water is 52 mg /); the vapor pressure is 124 hPa at 24 rec., the Kow log is 3.44. Concentration of the substance into the product I (upid. Mostly hydrophobic. Easily biodegradable. Solubility in water is 52 mg /); the vapor pressure is 124 hPa at 24 rec., the Kow log is 3.44. Concentration of the					
Prevent unloading of untreated waste into waste water and retrieve it from the site itself. Technical measures and conditions to control dispersal from source to workers Siegerally required when handling or using this product. Wear tested gloves according to the EN374 standard and suitable working suit during the activities when skin contact is possible. Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to personal protection, hygiene and health assessment Ontrolio dell'esposizione ambientale Product characteristics Physical state of the product Wear tested gloves according to EN374 standard and suitable work suit during activities when skin contact is possible. Wear tested gloves according to EN374 standard and suitable work suit during activities when skin contact is possible. Wear tested gloves according to EN374 standard and suitable work suit during activities when skin contact is possible. Wear tested gloves according to EN374 standard and suitable work suit during activities when skin contact is possible. Physical state of the product Use of the substance into the upto 100% and 100 personal protection, hygiene and health assessment Oncomentation of the substance into the upto 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the product "Up to 100% and 100 personal test of the pr		ess level			
itself. Itse	(source) to prevent releases				
Technical measures and conditions to control dispersal from source to workers Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to personal protection, hygiene and health assessment Controll dell'espositione ambientale Product characteristics Physical state of the product Concentration of the substance into the pr			_	into waste water and retrieve it from the site	
is generally required when handling or using this product. Wear tested gloves according to the EN374 standard and suitable working suit during the activities when skin contact is possible. Measures and conditions to prevent / limit releases, dispersion and exposure Conditions and measures related to personal protection, hyglene and health assessment Controllo dell'esposizione ambientale Product characteristics Physical state of the product Concentration of the substance into the product with substance into interest with substance into the product with substance into interest with substance into the substance into interest with substance into wi		11.1			
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Use of skin protection

None

The assessment of the environmental and human exposure is calculated with the EUSES model

Estimation of exposure and reference to its source (environment): Exposures are modest and do not exceed the limit values. Estimation of exposure and reference to its source (human): The ECETOC TRA tool was used to estimate workplace exposures

Downstream User Guide

Environment

The indications are based on the alleged operational conditions, which may not apply to all sites; therefore, it is necessary to apply a scale factor to define appropriate site-specific risk management measures.

The elimination efficiency required for waste water can be achieved by using on / off site technologies alone or in combination. The elimination efficiency required for the air can be obtained using on-site technologies, alone or in combination. Further details on scale factors and control technologies in the SpERC Information Document.

Health

Expected exposures should not exceed DN (M) EL when implementing the risk management measures / operating conditions described in "Exposure Control". Where other risk / operational risk management measures are taken, users must ensure that risks are managed at least equivalent levels. Risk management measures are based on qualitative risk characterization.

Additional suggestions beyond the assessment of chemical safety

Note: The measures outlined in this section have not been taken into account in the exposure estimation for exposure to the above scenario. They are not subject to the obligations under REACh Article 37 (4).

Use specific measures to reduce exposure beyond the estimated exposure scenario whenever possible.

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