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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Naphtha (petroleum), Gas Oils (petroleum), heavy vacuum

Product description V2021-SPLITTER BOTTOMS (FUEL)- Gas Oils (petroleum), heavy

vacuum

Trade Name C7SPLITTER BOTTOMS (FUEL)

 Product code
 SPLITBOT, V2007

 CAS No.
 64741-42-0

 EC No.
 265-042-6

REACH Registration No. 01-2119474679-18-xxxx

1.2 Relevant identified uses of the substance or mixture

and uses advised against

| Identified Use(s) | No | Exposure Scenario | Page: |
|-------------------|----|---|-------|
| | 1 | Distribution of Naphtha (petroleum), full-range straight-run (0 - | 11 |
| | | 1 % benzene content) | |
| | 2 | Formulation and (re)packing of Naphtha (petroleum), full-range | 14 |
| | | straight-run (0 - 1 % benzene content) and Mixtures | |
| | 3 | Use of Gasoline (0 – 1 % benzene content) as a | 17 |
| | | fuel(Industrial) | |
| | 4 | Use of Gasoline (0 – 1 % benzene content) as a | 19 |
| | | fuel(Professional) | |
| | 5 | Use of Gasoline (0 – 1 % benzene content) as a | 22 |

fuel(Consumer)

Uses advised against Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification Vitol SA

Place des Bergues 3 1201 Geneva Switzerland +31 10 498 7200 +31 10 452 9545 xreach@vitol.com

1.4 Emergency telephone number

E-mail (competent person)

Telephone

Fax

Emergency Phone No. +44 (0) 1235 239 670, 24/7
Languages spoken All official European languages.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP) Flam. Liq. 1; H224

Asp. Tox. 1; H304 Skin Irrit. 2; H315 Muta. 1B; H340 Carc. 1B; H350 Repr. 2; H361fd

STOT SE 3; H336 (central nervous system, inhalation)

Aquatic Chronic 2; H411

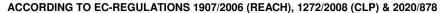
2.2 Label elements According to Regulation (EC) No. 1272/2008 (CLP)

Product description V2021-SPLITTER BOTTOMS (FUEL)- Gas Oils (petroleum), heavy

vacuum

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Hazard Pictogram(s)









Signal Word(s) Danger

Hazard Statement(s)

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation. H340: May cause genetic defects.

H350: May cause cancer.

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn

child.

H336: May cause drowsiness or dizziness. (central nervous system, inhalation)

H411: Toxic to aquatic life with long lasting effects.

Precautionary Statement(s) P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other

ignition sources. No smoking.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face

protection/hearing protection.

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P331: Do NOT induce vomiting.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards May form explosive mixture with air. The vapour is heavier than air; beware of pits

and confined spaces. May cause irritation to eyes and air passages.

Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| SUBSTANCE | CAS No. | EC No. | %W/W |
|--|------------|-----------|------|
| Naphtha (petroleum), full-range straight-run | 64741-42-0 | 265-042-6 | 100 |

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Eliminate sources of ignition. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Avoid all contact. Do not ingest. If swallowed then seek immediate medical assistance.

Hydrogen sulphide (H2S) can accumulate in the headspace of storage tanks and reach potentially hazardous concentrations.

If there is any suspicion of inhalation: A self contained breathing apparatus should be worn. Remove to fresh air immediately.

H2S Warning:

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inhalation IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical advice/attention if you feel unwell

> IF ON SKIN (or hair): Remove contaminated clothing immediately and wash affected skin with plenty of water or soap and water. If irritation (redness, rash, blistering) develops, get medical attention.

> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

> IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. If unconscious, place in recovery position and get medical attention immediately. Do not give anything by mouth to an unconscious person. Get medical attention immediately. Do not wait for symptoms to appear. inhalation: May cause drowsiness or dizziness. Headache, nausea and vomiting. Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

Ingestion: Aspiration into the lungs may cause chemical pneumonitis, which can be fatal. Ingestion may cause irritation of the gastrointestinal tract. Nausea, Vomiting and Diarrhoea

Treat symptomatically..

IF INHALED: If unconscious, place in recovery position and get medical attention immediately. Administer oxygen if available and artificial respiration if necessary. IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If aspiration is suspected obtain immediate medical attention. If vomiting

occurs spontaneously, keep head below hips to prevent aspiration into the lungs.

Skin contact

Eye contact

Ingestion

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed

Notes to a physician:

SECTION 5: FIREFIGHTING MEASURES

5.1 **Extinguishing media**

Suitable extinguishing media

Unsuitable extinguishing media

5.2 Special hazards arising from the substance or mixture

5.3 Advice for firefighters Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry

Do not use water jet. Direct water jet may spread the fire.

Extremely flammable liquid and vapour. Will float and can be reignited on surface water. Decomposes in a fire giving off toxic fumes: A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. May form explosive mixture with air. Prevent liquid entering sewers, basements and any watercourses. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. If sulphur compounds are present in appreciable amounts, combustion products may include also H2S and SOx (sulfur oxides) or sulfuric acid

Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid release to the environment. Dike fire control water for later disposal.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact with substance. Ensure adequate ventilation Do not breathe vapour. Do not ingest. If swallowed then seek immediate medical assistance. Do not use sparking tools. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.

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H2S Warning: Product may release Hydrogen Sulphide. Exposure controls - These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training. Please see section 8 for appropriate personal protection equipment Small spillages: Wear flame-resistant antistatic protective clothing. Large spillages: Evacuate the area and keep personnel upwind. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. Avoid all contact. Wear chemical protection suit and breathing apparatus. See Also Section: 8. 6.2 Avoid release to the environment. Do not allow to enter drains, sewers or **Environmental precautions** watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body. If necessary: Dike area to contain the spill and prevent releases to sewers, drains, or other waterways. 6.3 Methods and material for containment and cleaning Provided it is safe to do so, isolate the source of the leak. Use non-sparking up equipment when picking up flammable spill. The vapour is heavier than air; beware of pits and confined spaces. Ensure that the equipment is adequately grounded. Allow small spillages to evaporate provided there is adequate ventilation. Wear flame-resistant antistatic protective clothing. Wear chemical protection suit and breathing apparatus. Spillages onto land: In case of soil contamination, remove contaminated soil and treat in accordance with local regulations. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a lidded container for disposal or recovery. Dispose of this material and its container as hazardous waste Small spillages: Allow small spillages to evaporate provided there is adequate ventilation. Wear flame-resistant antistatic protective clothing. Large spillages: Cover spillage with foam to reduce evaporation. Do not use water jet. Collect as much as possible in clean container for reuse or disposal. Spillages on water or at sea: Small spillages: Contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. Large spillages: Open waters should be contained with floating barriers or other mechanical means and recovered, only if this is strictly necessary and if fire/explosion risks can be adequately prevented. Otherwise control the spreading

See Section: 8,13

SECTION 7: HANDLING AND STORAGE

Reference to other sections

7.1 Precautions for safe handling

6.4

smoking. Use only outdoors or in a well-ventilated area. Prevent vapour build up by providing adequate ventilation during and after use. May form explosive mixtures with air. Take action to prevent static discharges. Use non-sparking tools. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used. The vapour is heavier than air; beware of pits and confined spaces. Avoid all contact with substance. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe vapour. See Section: 8. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned.

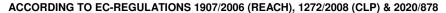
Obtain special instructions before use. Keep away from sources of ignition - No

of the spillage, and let the substance evaporate naturally.

Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training.

H2S Warning:

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7.2 Conditions for safe storage, including any incompatibilities

Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep only in original packaging. Keep containers properly sealed when not in use. Protect from sunlight. Containers of this material may be hazardous when empty since they retain product residue. Empty container may contain product residue which may result in flammable or explosive vapours inside the container.

Stable at ambient temperatures.

Suitable containers: Stainless steel, Mild steel

Do not store in: Synthetic materials Keep away from oxidising agents.

7.3 Specific end use(s) See Section: 1.2 and/or Exposure Scenario.

storage temperature Storage measures

Incompatible materials

Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

No Occupational Exposure Limit assigned. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

8.1.2 Biological Limit Value

Not established

8.1.3 PNECs and DNELs

PNEC: Not established Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| Naphtha (petroleum), full-range straight-run Derived no effect level | oral | inhalation | dermal |
|--|------|------------------------|--------|
| Worker - Long Term - Systemic effects | - | 1300 mg/m ³ | - |
| Worker - Long Term - Local effects | - | 840 mg/m ³ | - |
| Worker - acute - Local effects | - | 1100 mg/m ³ | - |
| Consumer - Long Term - Systemic effects | - | 1200 mg/m ³ | - |
| Consumer - Long Term - Local effects | - | 180 mg/m ³ | - |
| Consumer - acute - Local effects | - | 640 mg/m ³ | - |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the working place.

8.2.2 Individual protection measures, such as personal protective equipment

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

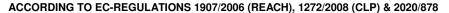
Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate. Keep good industrial hygiene. Always wash hands before smoking, eating and drinking. Do not eat, drink or smoke at the work place. Refer to annexes for exposure scenarios detailing use specific exposure controls

Eye / face protection

Use eye protection according to EN 166, designed to protect against liquid splashes.



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Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material:

refer to the information provided by the gloves' producer.

Recommended: Nitrile rubber.

Body protection: Wear anti-static clothing and shoes.

small scale: Wear suitable coveralls to prevent exposure to the skin.

large scale: Chemical protection suit

Respiratory protection



When the product is heated/In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (EN143) is recommended. Filter type

Closed system(s): Not normally required.

Thermal hazards not applicable

8.2.3 **Environmental exposure controls** Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

> Physical state Liquid Colour Colourless Odour Hydrocarbon Melting point/freezing point < - 60 °C < 35 °C

Boiling point or initial boiling point and boiling range

Flammability

10.4

not applicable - Liquid Lower and upper explosion limit

Flammable Limits (Lower) (%v/v) 1.4 Flammable Limits (Upper) (%v/v) 7.6

< -40 °C Flash point Auto-ignition temperature > 220 °C

Decomposition temperature Not established рΗ Not established

<1 mm²/s @ 20 °C Kinematic viscosity Immiscible with water. Solubility

Partition coefficient: n-octanol/water (log value) not applicable. Substance is complex UVCB.

4 - 240 kPa @ 37.8°C Vapour pressure

0.62 - 0.88 g/cm3 @ 15 °C Density and/or relative density > 2

Relative vapour density

Particle characteristics Not established

9.2 Other information None Known

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity Stable under normal conditions Reacts with - Strong oxidising agents 10.2 Chemical stability Stable under normal conditions Hazardous polymerisation will not occur.

Product may release Hydrogen Sulphide.

10.3 Possibility of hazardous reactions Extremely flammable liquid and vapour. May form explosive mixture with air.

Vapours are heavier than air and may travel considerable distances to a source

of ignition and flashback. Product may release Hydrogen Sulphide. Conditions to avoid

Elevated temperature. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight.

10.5 Incompatible materials Keep away from oxidising agents. Strong Acids and Alkalis.

10.6 Hazardous decomposition products A mixture of solid and liquid particulates and gases including unidentified

organic and inorganic compounds. Decomposes in a fire giving off toxic fumes:

COx, H2S, SOx,

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in

Regulation (EC) No 1272/2008

Acute toxicity - Ingestion

Acute toxicity - Inhalation

Acute toxicity - Skin contact

Skin corrosion/irritation

Serious eye damage/irritation

Respiratory or skin sensitisation

Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity

STOT - Single Exposure

STOT - Repeated Exposure

Aspiration hazard

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

11.2.2 Other information

12.2

All test data taken from existing ECHA registrations for the substances

mentioned.

Based upon the available data, the classification criteria are not met.

LD50 > 5000 mg/kg bw/day (rat) (OECD 401)

Based upon the available data, the classification criteria are not met.

LC50 Vapour > 5600 mg/m³ Air (rat) (OECD 403)

Based upon the available data, the classification criteria are not met.

LD50 > 2000 mg/kg bw/day (rabbit) (OECD 402)

Skin Irrit. 2; Causes skin irritation. Irritating to skin. (rabbit) (OECD 404)

Based upon the available data, the classification criteria are not met.

Not irritating to eyes (rabbit) (OECD 405)

Based upon the available data, the classification criteria are not met.

Sensitisation (guinea pig) - Negative (OECD 406)

Muta. 1B; May cause genetic defects. Harmonised Classification.

ECHA Registration Endpoint summary: According to EU CLP Classification (EC no. 1272/2008), there is a regulatory requirement to classify gasoline and naphtha streams as hazardous for this endpoint when they contain >0.1%

benzene

Carc. 1B; May cause cancer. Harmonised Classification.

ECHA Registration Endpoint summary: According to EU CLP Classification (EC no. 1272/2008), there is a regulatory requirement to classify gasoline and naphtha streams as hazardous for this endpoint when they contain >0.1%

benzene

Repr. 2; Suspected of damaging fertility or the unborn child.

ECHA Registration Endpoint summary: According to EU CLP Classification (EC no. 1272/2008), there is a regulatory requirement to classify gasoline and naphtha streams as hazardous for this endpoint when they contain >0.1%

Toluene and/Or n-Hexane

STOT SE 3; May cause drowsiness or dizziness.

Weight of evidence approach

Based upon the available data, the classification criteria are not met.

oral: No adverse effect observed (rat) (Halder CA, et al. (1985))

inhalation: No adverse effect observed (rat) (OECD 453)
Chronic - Systemic effects NOAEC 1402 mg/m³

No adverse effect observed. (Mouse) (OECD TG 410)

Chronic - Systemic effects NOAEL 375 mg/kg bw/day

Asp. Tox. 1; May be fatal if swallowed and enters airways. Harmonised

Classification.

Viscosity: <1 mm²/s @ 20 °C

This substance does not have endocrine disrupting properties with respect to

humans.

SECTION 12: ECOLOGICAL INFORMATION

Persistence and degradability

12.1 Toxicity Aquatic Chronic 2; Toxic to aquatic life with long lasting effects.

dermal:

Short Term (acute): LL50 (Fish) (96hr) 10 mg/l (OCED 203)

Long Term (Chronic): According to the EU CLP Regulation (EC No. 1272/2008) criteria, substances in the low boiling point naphtha category are classified as Chronic Category 2

(H411) for the environment based on acute invertebrate and alga toxicity. Readily biodegradable. (OECD 301F)

12.3 Bioaccumulative potential Substance is complex UVCB. The BCF (fish) of this substance components is

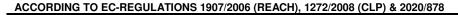
well below the criteria for bioaccumulation. Therefore, this substance is not considered as bioaccumulative substance.(ECHA registration dossier: PBT

assessment 2)

12.4 Mobility in soil The product is predicted to have low mobility in soil. Immiscible with water.

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12.5 Results of PBT and vPvB assessment Substance is complex UVCB. This substance does not contain PBT constituents

included in the SVHC candidate list at concentrations above 0.1%.

12.6 Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to

non-target organisms.

12.7 Other adverse effects None Known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods Dispose of this material and its container as hazardous waste Do not empty into

drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue. Containers must not be punctured or destroyed by burning, even when empty. Allocation of a waste code number, according to the

European Waste Catalogue, should be carried out in agreement with the

regional waste disposal company. Waste code: 13 07 01 Waste classification according to Directive 2008/98/EC EU Waste Codes: HP3, HP4, HP7, HP10, HP11, HP14

(Waste Framework Directive)

SECTION 14: TRANSPORT INFORMATION

| | | ADR/RID | IMDG/ADN |
|------|-----------|---------|----------|
| 14.1 | UN number | UN 1268 | UN 1268 |

14.2 Proper Shipping Name PETROLEUM DISTILLATES N.O.S. PETROLEUM DISTILLATES N.O.S.

14.3 Transport hazard class(es) 3 3+(N2, CMR,F)

14.4 Packing group I
 14.5 Environmental hazards I
 MILIEUGEVAARLIJK / ENVIRONMENTALLY HAZARDOUS / UMWELTGEFÄHREND

/DANGEREUX POUR/ L'ENVIRONNEMENT

14.6 Special precautions for user See Section: 2

14.7 Maritime transport in bulk according This product is being carried under the scope of MARPOL Annex 1. Special Precautions: Refer to

to IMO instruments Chapter 7 'Handling and Storage' for special precautions which a user needs to be aware of, or

needs to comply with, in connection with transport.

14.8 Additional information ADR HIN: 33 EmS: F-E, S-E

Tunnel restriction code: 3 (D/E) Limited Quantity: 500ml

Limited Quantity: 500 ml

Special Provisions 664

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental

regulations/legislation specific for the substance or

mixture

15.1.1 EU regulations

Seveso Upper Tier: 25000 tonnes

Lower Tier: 2500 tonnes

Annex XVII (Restrictions) In accordance with REACH Annex XVII entry 30 (c) this substance is exempt from

Entry 28 and 29 of REACH Annex XVII as it is to be sold as a fuel in a closed

svstem.

15.1.2 National regulations

Germany Wassergefährdungsklasse (Germany). WGK number: 3

15.2 Chemical Safety Assessment A REACH chemical safety assessment (CSA) has been carried out. Refer to

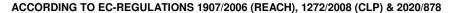
annexes for exposure scenarios detailing use specific exposure controls.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

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References:

Existing ECHA registration(s) for Naphtha (petroleum), full-range straight-run (CAS No. 64741-42-0) and Chemical Safety Report.

Literature References:

1. Halder CA, et al., 1985, Hydrocarbon nephropathy in male rats: identification of the nephrotoxic components of unleaded gasoline., Toxicol. Ind. Health 1:67-87

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Legend

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road **ADR** ADN ADN: European Agreement on the International Transport of Dangerous Goods by Inland Waterways CLP Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

DNEL Derived no effect level

IATA IATA: International Air Transport Association **ICAO** ICAO: International Civil Aviation Organization **IMDG** IMDG: International Maritime Dangerous Goods

I TFI Long term exposure limit

PBT PBT: Persistent. Bioaccumulative and Toxic

PNEC Predicted No Effect Concentration

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals

RID RID: Regulations concerning the international railway transport of dangerous goods

STEL Short term exposure limit

vPvB vPvB: very Persistent and very Bioaccumulative

OECD Organisation for Economic Cooperation and Development

FS Exposure Scenario

NOAEC no observed adverse effect concentration NOAEL No Observed Adverse Effect Level

Hazard classification / Classification code:

Flam. Liq. 1, Flammable liquid, Category 1 Asp. Tox. 1, Aspiration Toxicity, Category 1 Skin Irrit. 2, Skin irritation, Category 2

Muta. 1B, Germ cell mutagen, Sub-category 1B

Carc. 1B, Carcinogen, Category 1B Repr. 2, Reproductive toxicant, Category 2

STOT SE 3, Specific target organ toxicity - Single exposure, Category 3

Aquatic Chronic 2, Hazardous to the aquatic environment (Chronic),

Category 2

Hazard Statement(s)

H224: Extremely flammable liquid and vapour. H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation. H340: May cause genetic defects.

H350: May cause cancer.

H361fd: Suspected of damaging fertility. Suspected of damaging the

unborn child.

H336: May cause drowsiness or dizziness. (central nervous system,

inhalation)

H411: Toxic to aquatic life with long lasting effects.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

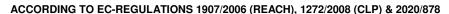
Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Vitol SA gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Vitol SA accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

Annex to the extended Safety Data Sheet (eSDS)

See below -

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Naphtha (petroleum), full-range straight-run (0 -1% benzene content)

CAS Number 64741-42-0 EC Number 265-042-6

Summary of Parameters

| Physical Paramete | ers | | | |
|----------------------|--------------------------|-----------------------|---|--|
| Vapour pressure (Pa) | | | 4 – 240 @ 37.8 °C (Value used for exposure assessment = 340) | |
| Partition Coefficien | t (log K _{OW}) | | 2.00 - 20.43 | |
| Aqueous solubility | (mg L ⁻¹) | | 1.6E+03 - 5.1E-18 (Value used for exposure assessment = 2.0E+02) | |
| Molecular weight | | | not applicable | |
| Biodegradability | | | Not defined | |
| Human Health par | | | | |
| | Short term | inhalation (mg/m³) | 1100 | |
| Markey | | dermal (mg/kg bw/day) | not applicable | |
| Worker | Long Torm | inhalation (mg/m³) | 3.2 (= 1 ppm)* | |
| | Long Term | dermal (mg/kg bw/day) | 0.234* | |
| · | | inhalation (mg/m³) | 0.0032 (=1 ppb)* (0.93 mg/kg bw/day) | |
| Consumer | | dermal (mg/kg bw/day) | 0.234* | |
| | | oral (mg/kg bw/day) | 8.8 | |

Environmental parameter (PNECs)

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

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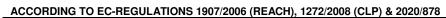
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Contributing Scenarios

Workers

Concentration: benzene (Worst case assumption. Contains benzene. @1%).

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| PROC1 | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. |
|----------------------|--|
| PPOO | Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with |
| PROC2 | equivalent containment conditions |
| PROC2 (Storage) | Use in closed, continuous process with occasional controlled exposure. |
| THOOZ (Storage) | Bulk product storage. |
| PROC3 | Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition. |
| PROC3 (Sampling) | Use in closed, continuous process with occasional exposure. Sample collection |
| PROC8a (Maintenance) | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Clean down and maintenance of vessels and containers. |
| PROC8b (bulk) | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Bulk transfer in a closed system |
| PROC8b (Drum) | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Drum or batch transfers. |
| PROC8b (Refueling) | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Refueling vehicles, light aircraft or marine craft |
| PROC8b (aircraft) | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Refuelling aircraft |
| PROC15 | Use as laboratory reagent. |
| PROC16 | Using material as fuel sources, limited exposure to unburned product to be expected. |
| PROC16 (Additive) | Using material as fuel sources, limited exposure to unburned product to be expected. Use as a fuel additive. |
| Environment | |
| ERC1 | Manufacture of substance |
| ERC2 | Formulation of preparations |
| ERC3 | Formulation in materials |
| ERC4 | Industrial use of processing aids in processes and products, not becoming part of articles |
| ERC5 | Industrial use resulting in inclusion into or onto a matrix |
| ERC6a | Industrial use resulting in manufacture of another substance (use of intermediates) |
| ERC6b | Industrial use of reactive processing aids |
| ERC6c | Industrial use of monomers for manufacture of thermoplastics |
| ERC6d | Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers |
| ERC7 | Industrial use of substances in closed systems |
| ERC9a | Wide dispersive indoor use of substances in closed systems |
| ERC9b | Wide dispersive outdoor use of substances in closed systems |
| Consumer | |
| PC13 | Fuels |
| | (Liquid: Automotive Refuelling) |
| | (Liquid Scooter Refuelling) |
| | (Liquid: Garden equipment - Refuelling) |
| | (Liquid, Garden equipment - Use) |

Exposure Scenario 1 – Distribution of Naphtha (petroleum), full-range straight-run (0 – 1 % benzene content)

| 1.0 Contributing Scenarios | |
|---|--|
| Sector of uses SU | SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites |
| PROC1 PROC2 PROC2 (Storage) PROC3 PROC3 PROC3 (Sampling) PROC8 (Maintenance) PROC8b (bulk) PROC15 | |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC1 ERC2 ERC3 ERC4 ERC5 ERC6 ERC6a ERC6b ERC6c ERC6c |

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Specific Environmental Release Categories



ERC7



| Specific Environmental Release Categories SPERC | ESVOC | /OC SpERC 1.1b v.1 | | | |
|---|------------------------|--|---|--|--|
| SFERG | | | | | |
| 2.0 Operational conditions and risk manage | omont me | 2001120 | | | |
| 2.1 Control of worker exposure | ament me | easures | | | |
| Product characteristics | | | | | |
| Physical form of product | | Liquid with high volatility. | | | |
| Concentration of substance in product | | Covers concentrations up to 100% | (< 1.9/ honzono content) | | |
| Human factors not influenced by risk mana | aamant | Covers concentrations up to 10078 | S (= 1 % Delizerie Content) | | |
| Potential exposure area | igement | Not defined | | | |
| Frequency and duration of use | | Not defined | | | |
| Exposure duration per day | | Covers daily exposures up to 8 ho | ura (uplace stated differently) | | |
| Frequency of use (days per year) | | 300 | urs (unless stated unferently). | | |
| Other operational conditions affecting work | kar avna | | | | |
| Other operational conditions affecting work | ker expos | PROC3, PROC2 (Storage) | Outdoor | | |
| Area of use | | | Outdoor | | |
| 71104 01 400 | | All other PROC's | Not defined (default = Indoor) | | |
| Characteristics of the surroundings | | Not defined | | | |
| General measures applicable to all activities | | | | | |
| Assumes a good basic standard of occupation General measures (skin irritants) | al hygien | e is implemented. Assumes activities | s are at ambient temperature (unless stated differently). | | |
| closed systems, dedicated facilities and suit | grades (in able gen | cluding automation) for the eliminational/local exhaust ventilation. Drain | on of releases. minimise exposure using measures such a down systems and clear transfer lines prior to breaking | | |
| provide specific activity training to operators to | minimis | e exposures; wear suitable gloves a | otential for exposure: restrict access to authorised persons nd coveralls to prevent skin contamination; wear respirator iately and dispose of waste safely. Ensure safe systems of | | |
| | | | d maintain all control measures. Consider the need for risk | | |
| Technical conditions of use | | | | | |
| PROC1, PROC2, PROC3 | | Handle substance within a closed | evetom | | |
| PROC8b (bulk) | | | er containment or extract ventilation. (Efficiency of at least | | |
| PROC15 | | Use fume cupboard. (Efficiency of | at least 90 %) | | |
| Organisational measures | | | | | |
| PROC3 (Sampling) | | Sample via a closed loop or other | system to avoid exposure. (Efficiency of at least 95 %) | | |
| Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. (inhalation - efficiency of at least 90 %) | | | | | |
| Risk management measures related to hun | nan healt | h | | | |
| Respiratory protection | | No special measures are required | | | |
| | | PROC2 | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) | | |
| Hand and/or Skin protection | | PROC8a (Maintenance) | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 90 %) | | |
| Eye Protection | | No special measures are required | | | |
| | | · · · · · · · · · · · · · · · · · · · | | | |

Other operational conditions affecting worker exposure Wear suitable coveralls to prevent exposure to the skin. Clear transfer lines prior to de-coupling. Avoid dip sampling. 2.2 Control of environmental exposure Amounts used Fraction of EU tonnage used in region: 0.1 Regional use tonnage (tons/year): 3.1E+06 Fraction of Regional tonnage used locally: tons/year 2.0E-03 Annual site tonnage (tons/year): 62,000 Average daily use (kg/day) 210,000 Environment factors not influenced by risk management Flow rate of receiving surface water (m3/d): Not defined (default = 18,000) Local freshwater dilution factor:

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| Local marine water dilution factor: | 100 | | | | |
|--|---|--|--|--|--|
| operational conditions | | | | | |
| Emission days (days/year): | 300 | | | | |
| Release fraction to air from process (initial release prior to RMM): | 1.0E-03 | | | | |
| Release fraction to wastewater from process (initial release prior to RMM): | 1.0E-05 | | | | |
| Release fraction to soil from process (initial release prior to RMM): | 1.0E-05 | | | | |
| Technical onsite conditions and measures to reduce or limit discharges, | air emissions and releases to soil | | | | |
| Treat air emission to provide a typical removal efficiency of (%): | 90 | | | | |
| If there is no discharge to domestic sewage treatment plant, Treat onsite | | | | | |
| wastewater (prior to receiving water discharge) to provide the required | 0 | | | | |
| removal efficiency of (%): | | | | | |
| If discharging to domestic sewage treatment plant, provide the required onsite | | | | | |
| wastewater removal efficiency of (%): | 0 | | | | |
| Treat soil emission to provide a typical removal efficiency of (%): | 0 | | | | |
| Common practices vary across sites thus conservative process release estimates | ates used. If discharging to domestic sewage treatment plant, no onsite | | | | |
| wastewater treatment required. | | | | | |
| Organisational measures to prevent/limit release from site | | | | | |
| Do not apply industrial sludge to natural soils. Sludge should be incinerated, co | ntained or reclaimed. | | | | |
| Conditions and measures related to municipal sewage treatment plant | | | | | |
| Size of municipal sewage system/treatment plant (m³/d) | 2000 | | | | |
| Degradation effectiveness (%) | 95.7 | | | | |
| Conditions and measures related to external treatment of waste for dispo | sal | | | | |
| External treatment and disposal of waste should comply with applicable local a | nd/or national regulations. | | | | |
| Substance release quantities after risk management measures | | | | | |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 530,0000 | | | | | |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

| | inhalation | | der | mal | Combined |
|----------------------------|-----------------------------------|---|--------------------------------------|---|---|
| Process category [PROC] | inhalation exposure (mg/m³) | Risk characterisation ratio (RCR) | dermal exposure (mg/kg bw/day) | Risk characterisation ratio (RCR) | Risk characterisation ratio (RCR) |
| PROC1 | 0.00 | 0.00 | 0.03 | 0.15 | 0.15 |
| PROC2 | 0.50 | 0.50 | 0.03 | 0.12 | 0.62 |
| PROC2 (Storage) | 0.35 | 0.35 | 0.14 | 0.57 | 0.94 |
| PROC3 | 0.70 | 0.70 | 0.03 | 0.15 | 0.85 |
| PROC3 (Sampling) | 0.05 | 0.05 | 0.03 | 0.15 | 0.20 |
| PROC8a (Maintenance) | 0.25 | 0.25 | 0.14 | 0.57 | 0.84 |
| PROC8b (bulk) | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 |
| PROC15 | 0.05 | 0.05 | 0.00 | 0.01 | 0.06 |

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

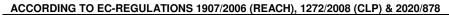
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| | ronmental cposure | STP | freshwater | marine water | soil | freshwater sediment | marine sediment |
|------|--|-----------------|--------------|-----------------|---------------------|---------------------|---------------------|
| Envi | redicted ironmental xposure (PEC) | 4.6E-03 mg/L | 3.6E-03 mg/L | 4.6E-05 mg/L | 1,68E-4 mg/kg ww | 0.15 mg/kg ww | 4.6E-03 mg/kg ww |

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| | Risk characterisation ratio (RCR) | 2.8E-04 | 1.2E-02 | 1.3E-04 | 2.3E-05 | 6.0E-03 | 1.9E-04 | |
|--------------|---|---------------|---------|------------------------------|---------|----------------------------------|---------|--|
| Human exposu | re prediction: | | | | | | | |
| | Route | e of Exposure | e Expos | ure (µg/kg ⁻¹ day | r¹) F | Risk characterisation r (RCR) | atio | |
| | | oral | | 3.9 | | 3.9E-02 | | |
| | i | inhalation | | 0.68 | | 7.3E-04 | | |

| 4.0 Evaluation guidance to downstream user | | | | |
|--|--|--|--|--|
| For scaling see | are managed to at least equiv Available hazard data do not s Further details on scaling and industries-libraries.html). | support the need for a DNEL to be established for other health effects. control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for- ene and assumes that the substance contains 1 % benzene. Arithmetic scaling may ins < 1 % benzene | | |
| Exposure assessment | Worker | ECETOC TRA | | |
| instrument/tool/method | Environment | The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. | | |

Exposure Scenario 2 – Formulation and (re)packing of Naphtha (petroleum), full-range straight-run (0 – 1 % benzene content)

| 1.0 Contributing Scenarios | |
|---|---|
| Sector of uses SU | SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys) |
| Process category [PROC] | PROC1 PROC2 PROC2 (Storage) PROC3 PROC3 (Sampling) PROC8a (Maintenance) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC15 |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC2 |
| Specific Environmental Release Categories SPERC | ESVOC SPERC 2.2.v1 |

| 2.0 Operational conditions and risk management measures | | | | | |
|---|------------------------------|---|--|--|--|
| 2.1 Control of worker exposure | | | | | |
| Product characteristics | | | | | |
| Physical form of product | Liquid with high volatility. | | | | |
| Concentration of substance in product | Covers concentrations up | to 100% (≤ 1 % benzene content) | | | |
| Human factors not influenced by risk mana | ngement | | | | |
| Potential exposure area | Not defined | | | | |
| Frequency and duration of use | | | | | |
| Exposure duration per day | Covers daily exposures up | to 8 hours (unless stated differently). | | | |
| Frequency of use (days per year) | 300 | | | | |
| Other operational conditions affecting work | ker exposure | | | | |
| | PROC3 | Outdoor | | | |
| Area of use | All other PROC's | Not defined (default = Indoor) | | | |
| Characteristics of the surroundings | Not defined | Not defined | | | |
| General measures applicable to all activitie | es . | | | | |

Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).

General measures (skin irritants)

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

General measures (carcinogens)

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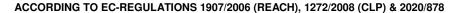
ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

| | | system to avoid exposure. (Efficiency of at least 95 %) | | |
|---|--|--|--|--|
| Ensure material transfers are under containment or extract ventilation. (Efficiency of at lea 97 %) | | | | |
| Use fume cupboard. (| Efficiency of | f at least 90 %) | | |
| 1 , | , , - | , | | |
| downs in sealed stora immediately. (Efficience | ge pending | r to equipment break-in or maintenance. Retain drain disposal or for subsequent recycle. Clear spills t 90 %) | | |
| | | 1 | | |
| No special measures | are required | | | |
| PROC2, PROC2 (Stor | rage) | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) | | |
| PROC8a (Maintenanc | ce) | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 90 %) | | |
| | are required | f. | | |
| osure | | | | |
| n. Clear transfer lines pri | or to de-cou | pling. Avoid dip sampling. | | |
| | | | | |
| | | | | |
| | 0.1 | | | |
| | 4.0E+05 | | | |
| | 7.4E-02 | | | |
| | 3.0E+04 | | | |
| | 1.0E+05 | | | |
| ement | | | | |
| | Not defined (default = 18,000) | | | |
| | 10 | | | |
| | 100 | | | |
| | T | | | |
| | | | | |
| | | | | |
| | | | | |
| | | ans and releases to sail | | |
| | 1 | ins and releases to som | | |
| | U | | | |
| | 05.2 | | | |
| nuo ine requireu | 90.3 | | | |
| wide the required | | | | |
| wide the required | 0 | | | |
| ncy of (%): | | | | |
| Treat soil emission to provide a typical removal efficiency of (%): Common practices vary across sites thus conservative process release estimates used. If discharging to domestic sewage treatment plant, no ons | | | | |
| , process release estima | iios us c u. II | aloonarying to domestic sewage treatment plant, no onsite | | |
| rom site | | | | |
| should be incinerated, co | ontained or r | reclaimed. | | |
| vage treatment plant | | | | |
| | 2000 | | | |
| d) | | | | |
| d) | 95.7 | | | |
| | Sample via a closed line Ensure material transing 97 %) Use fume cupboard. (Drain down and flush downs in sealed storal immediately. (Efficient immediately). (Efficient | Ensure material transfers are und 97 %) Use fume cupboard. (Efficiency of the street of the process release estimates used. If the pro | | |

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| Substance release quantities after risk management measures | |
|---|---------|
| Maximum allowable site tonnage (MSafe) based on release following total | 1.15,05 |
| wastewater treatment removal (kg/d): | 1.1E+05 |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

| | inhalation | | | Combined | |
|----------------------------------|-----------------------------------|-----------------------------------|---|-----------------------------------|---|
| Process category [PROC] | inhalation exposure (mg/m³) | Risk characterisation ratio (RCR) | dermal exposure (mg/kg bw/day) | Risk characterisation ratio (RCR) | Risk characterisation ratio (RCR) |
| PROC1 | 0.00 | 0.00 | 0.03 | 0.15 | 0.15 |
| PROC2 | 0.50 | 0.50 | 0.03 | 0.12 | 0.62 |
| PROC2 (Storage) | 0.50 | 0.50 | 0.03 | 0.12 | 0.62 |
| PROC3 | 0.70 | 0.70 | 0.03 | 0.15 | 0.85 |
| PROC3 (Sampling) | 0.05 | 0.05 | 0.03 | 0.15 | 0.20 |
| PROC8a (Maintenance) | 0.25 | 0.25 | 0.14 | 0.59 | 0.84 |
| PROC8b (bulk) | 0.05 | 0.05 | 0.07 | 0.30 | 0.35 |
| PROC8b (Drum/batch transfers) | 0.05 | 0.05 | 0.07 | 0.30 | 0.35 |
| PROC15 | 0.05 | 0.05 | 0.00 | 0.01 | 0.06 |

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| Environmental exposure | STP | freshwater | marine water | soil | freshwater sediment | marine sediment |
|---|----------|------------|-----------------|----------------------|---------------------|---------------------|
| Predicted Environmental Exposure (PEC) | 2.4 mg/L | 0.24 mg/L | 2.4E-02 mg/L | 1.67E-03 mg/kg ww | 9.4E-01 mg/kg ww | 9.4E-02 mg/kg ww |
| Risk characterisation ratio (RCR) | 0.14 | 0.66 | 0.066 | 4.6E-03 | 0.91 | 0.091 |

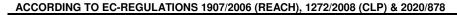
Human exposure prediction:

| Route of Exposure | Exposure (μg/kg ⁻¹ day ⁻¹) | Risk characterisation ratio (RCR) |
|-------------------|---|-----------------------------------|
| oral | 9.8 | 0.098 |
| inhalation | 1700 | 0.18 |

| 4.0 Evaluation guidance to downstream user | | | | |
|--|--|--|--|--|
| For scaling see | are managed to at least Available hazard data d Further details on scalir industries-libraries.html) Exposure calculated for | to not support the need for a DNEL to be established for other health effects. In and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-). It benzene and assumes that the substance contains 1 % benzene. Arithmetic scaling may contains < 1 % benzene | | |
| Evposure assessment | Worker | ECETOC TRA | | |
| Exposure assessment instrument/tool/method | Environment | The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. | | |

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Exposure Scenario 3 – Use of Gasoline (0 – 1 % benzene content) as a fuel- Industrial

| 1.0 Contributing Scenarios | |
|---|--|
| Sector of uses SU | SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Process category [PROC] | PROC1 PROC2 PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) PROC8b (Refuelling aircraft) PROC16 PROC16 (Additive) |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC7 |
| Specific Environmental Release Categories SPERC | ESVOC SPERC 7.12a.v1 |

| 2.0 Operational conditions and risk manage | ment measures | | |
|---|------------------------------|---|---|
| 2.1 Control of worker exposure | | | |
| Product characteristics | | | • |
| Physical form of product | Liquid with high volatility. | | • |
| Concentration of substance in product | Covers concentrations up | to 100% (≤ 1 % benzene content) | • |
| Human factors not influenced by risk manage | gement | | • |
| Potential exposure area | Not defined | | • |
| Frequency and duration of use | | | • |
| Exposure duration per day | Covers daily exposures up | to 8 hours (unless stated differently). | |
| Frequency of use (days per year) | 300 | | |
| Other operational conditions affecting work | er exposure | | |
| Area of use | PROC3 | Outdoor | |
| Area or use | All other PROC's | Not defined (default = Indoor) | |
| Characteristics of the surroundings | Not defined | • | |
| | | | |

General measures applicable to all activities

Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).

General measures (skin irritants)

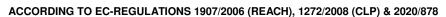
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise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

General measures (carcinogens)

Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

| Technical conditions of use | | | | |
|---|---|---|--|--|
| PROC1, PROC2, PROC2 (Storage), PROC3, PROC16, PROC16 (Additive) | Handle substance within a closed system. | | | |
| PROC8b (bulk), PROC8b (Drum/batch transfers), PROC8b (Refuelling), PROC8b (Refuelling aircraft) | Ensure material transfers are under containment or extract ventilation. (Efficiency of at least 90 %) | | | |
| Organisational measures | | | | |
| PROC8a (Maintenance) | Drain down and flush system prior to equipment break-in or maintenance. Retain drain do | | | |
| Risk management measures related to human health | h | | | |
| Respiratory protection | No special measures are required. | | | |
| Hand and/or Skin protection | PROC2 | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) | | |

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| | PROC8a (Maintenance | e) | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 90 %) | |
|--|----------------------------|---------------|---|--|
| Eye Protection | No special measures a | re required. | | |
| Other operational conditions affecting worker expos | sure | | | |
| Wear suitable coveralls to prevent exposure to the skin. | Clear transfer lines prior | to de-coupl | ing. Avoid dip sampling. | |
| 2.2 Control of environmental exposure | | | | |
| Amounts used | | | | |
| Fraction of EU tonnage used in region: | | 0.1 | | |
| Regional use tonnage (tons/year): | | 2.5E+05 | | |
| Fraction of Regional tonnage used locally: (tons/year) | | 1 | | |
| Annual site tonnage (tons/year): | | 2.5E+05 | | |
| Average daily use (kg/day): | | 8.2E+05 | | |
| Environment factors not influenced by risk manage | ment | | | |
| Flow rate of receiving surface water (m³/d): | | Not define | d (default = 18,000) | |
| Local freshwater dilution factor: | | 10 | .,, | |
| Local marine water dilution factor: | | 100 | | |
| operational conditions | | | | |
| Emission days (days/year): | | 300 | | |
| Release fraction to air from process (initial release prior | to RMM): | 5.00E-02 | | |
| Release fraction to wastewater from process (initial rele | ase prior to RMM): | 1.0E-05 | | |
| Release fraction to soil from process (initial release prior to RMM): | | | | |
| Technical onsite conditions and measures to reduce | | r emission: | s and releases to soil | |
| Treat air emission to provide a typical removal efficiency | y of (%): | 95.0 | | |
| If there is no discharge to domestic sewage treatment p | lant, Treat onsite | | | |
| wastewater (prior to receiving water discharge) to provious removal efficiency of (%): | de the required | 42.3 | | |
| If discharging to domestic sewage treatment plant, prov wastewater removal efficiency of (%): | ide the required onsite | 0 | | |
| Treat soil emission to provide a typical removal efficience | cy of (%): | 0 | | |
| Common practices vary across sites thus conservative wastewater treatment required. | process release estimat | es used. If | discharging to domestic sewage treatment plant, no onsite | |
| Organisational measures to prevent/limit release from | | | | |
| Do not apply industrial sludge to natural soils. Sludge sh | | tained or red | claimed. | |
| Conditions and measures related to municipal sewa | nge treatment plant | | | |
| Size of municipal sewage system/treatment plant (m³/d) | | 2000 | | |
| Degradation effectiveness (%) | - | 95.7 | | |
| Conditions and measures related to external treatme | ent of waste for dispos | al | | |
| External treatment and disposal of waste should comply | with applicable local and | d/or national | regulations. | |
| Substance release quantities after risk management | | | | |
| Maximum allowable site tonnage (MSafe) based on rele wastewater treatment removal (kg/d): | ease following total | 4.30E+06 | | |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

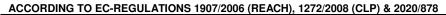
Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

| | inha | lation | der | Combined | |
|----------------------------|-----------------------------------|---|--------------------------------------|---|---|
| Process category [PROC] | inhalation exposure (mg/m³) | Risk characterisation ratio (RCR) | dermal exposure (mg/kg bw/day) | Risk characterisation ratio (RCR) | Risk characterisation ratio (RCR) |
| PROC1 | 0.00 | 0.00 | 0.03 | 0.15 | 0.15 |
| PROC2 | 0.50 | 0.50 | 0.03 | 0.12 | 0.62 |
| PROC2 (Storage) | 0.35 | 0.35 | 0.14 | 0.59 | 0.94 |
| PROC3 | 0.70 | 0.70 | 0.03 | 0.15 | 0.85 |
| PROC8a (Maintenance) | 0.35 | 0.35 | 0.14 | 0.59 | 0.94 |
| PROC8b (bulk) | 0.09 | 0.09 | 0.07 | 0.30 | 0.39 |
| PROC8b | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 |

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| (Drum/batch transfers) | | | | | |
|------------------------------|------|------|------|------|------|
| PROC8b (Refuelling) | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 |
| PROC8b (Refuelling aircraft) | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 |
| PROC16 | 0.25 | 0.25 | 0.03 | 0.15 | 0.40 |
| PROC16 (Additive) | 0.25 | 0.25 | 0.03 | 0.15 | 0.40 |

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| Environmental exposure | SIP treshwater soil | | soil | freshwater sediment | marine sediment | |
|---|-------------------------|------------|-----------------|---------------------|--------------------|---------------------|
| Predicted Environmental Exposure (PEC) 0.18 mg/L | | 0.018 mg/L | 1.8E-03 mg/L | 4.7E-03 mg/kg ww | 0.22 mg/kg ww | 7.2E-03 mg/kg ww |
| Risk characterisation ratio (RCR) | 0.011 | 0.051 | 5.1E-03 | 3.6E-03 | 0.074 | 7.0E-03 |

Human exposure prediction:

| Route of Exposure | Exposure (µg/kg ⁻¹ day ⁻¹) | Risk characterisation ratio (RCR) |
|-------------------|---|-----------------------------------|
| oral | 4.6 | 0.046 |
| inhalation | 1.3E+02 | 0.15 |

| 4.0 Evaluation guidance to downstream user | | | | | | |
|--|--|--|--|--|--|--|
| | | Where other risk management measures/operational conditions are adopted, then users should ensure that risks | | | | |
| | are managed to at least equiv | | | | | |
| | Available hazard data do not | support the need for a DNEL to be established for other health effects. | | | | |
| For scaling see | Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). | | | | | |
| | Exposure calculated for benzene and assumes that the substance contains 1 % benzene. Arithmetic scaling may | | | | | |
| | be possible if the batch contains < 1 % benzene | | | | | |
| Exposure assessment | Worker ECETOC TRA | | | | | |
| instrument/tool/method | Environment The Hydrocarbon Block Method has been used to calculate en exposure with the Petrorisk model. | | | | | |

Exposure Scenario 4 – Use of Gasoline (0 – 1 % benzene content) as a fuel- Professional

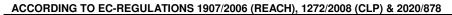
| 1.0 Contributing Scenarios | |
|--|---|
| Sector of uses SU | SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Process category [PROC] | PROC1 PROC2 PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) PROC16 |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC9a |

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Specific Environmental Release Categories SPERC

Flow rate of receiving surface water (m³/d):



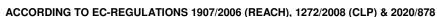
ESVOC SPERC 9.12b.v1



| of Elio | | | | | |
|--|--|---|---|--|--|
| 2.0 Operational conditions and risk management | measures | | | | |
| 2.1 Control of worker exposure | | | | | |
| Product characteristics | | | | | |
| Physical form of product | Liquid with high volati | lity. | | | |
| Concentration of substance in product | Covers concentrations | s up to 100% | o (≤ 1 % benzene content) | | |
| Human factors not influenced by risk managemen | nt | | | | |
| Potential exposure area | Not defined | | | | |
| Frequency and duration of use | | | | | |
| Exposure duration per day | Covers daily exposure | es up to 8 ho | urs (unless stated differently). | | |
| Frequency of use (days per year) | 300 | | | | |
| Other operational conditions affecting worker exp | | | | | |
| Area of use | PROC3 | | Outdoor | | |
| Area of use | All other PROC's | | Not defined (default = Indoor) | | |
| Characteristics of the surroundings | Not defined | | | | |
| General measures applicable to all activities | ' | | | | |
| | ene is implemented. Assur | mes activities | s are at ambient temperature (unless stated differently). | | |
| General measures (skin irritants) | ' | | | | |
| Avoid direct skin contact with product. Identify potential | tial areas for indirect skin ney occur. Wash off any | contact. We skin contant | ar gloves (tested to EN374) if hand contact with substand nination immediately. Provide basic employee training t | | |
| prevent/minimise exposures and to report any skin prevent | | | | | |
| General measures (carcinogens) | | | | | |
| closed systems, dedicated facilities and suitable ge containment. Clean/flush equipment, where possible, provide specific activity training to operators to minim protection when its use is identified for certain contril work or equivalent arrangements are in place to ma | eneral/local exhaust venti prior to maintenance Whe ise exposures; wear suita buting scenario; clear up | lation. Drain ere there is p ble gloves a spills immed | on of releases. minimise exposure using measures such a down systems and clear transfer lines prior to breaking tential for exposure: restrict access to authorised personand coveralls to prevent skin contamination; wear respirator iately and dispose of waste safely. Ensure safe systems of maintain all control measures. Consider the need for rispose of waste safely. | | |
| based health surveillance. | | | | | |
| Technical conditions of use | | | | | |
| PROC1, PROC2, PROC2 (Storage), PROC3, PROC16 | Handle substance wit | Handle substance within a closed system. | | | |
| PROC2 (Storage) | - | - | al ventilation. Natural ventilation is from doors, windows etc supplied or removed by a powered fan. (Efficiency of at | | |
| PROC8b (bulk), PROC8b (Drum/batch transfers), PROC8b (Refuelling) | Ensure material trans | fers are unde | er containment or extract ventilation. (Efficiency of at least | | |
| Organisational measures | • | | | | |
| PROC8a (Maintenance) | | ding disposa | to equipment break-in or maintenance. Retain drain down I or for subsequent recycle. Clear spills immediately. | | |
| Risk management measures related to human hea | alth | | | | |
| Respiratory protection | No special measures | are required. | | | |
| | PROC2 | | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) | | |
| Hand and/or Skin protection | PROC8a (Maintenand | Wear chemically resistant gloves (tested to EN | | | |
| Eye Protection | No special measures | are required. | | | |
| Other operational conditions affecting worker exp | <u>'</u> | | | | |
| Wear suitable coveralls to prevent exposure to the sk | | or to de coup | ling Avoid dip sampling | | |
| <u>:</u> | in. Olear transfer lines pric | i to de-coup | iing. Avoid dip sampiing. | | |
| 2.2 Control of environmental exposure | | | | | |
| Amounts used | | 101 | | | |
| Fraction of EU tonnage used in region: | | 0.1 | | | |
| Regional use tonnage (tons/year): | | 6.9E+04 | | | |
| Fraction of Regional tonnage used locally: (tons/year) | | 5.0E-04 | | | |
| Annual site tonnage (tons/year): | <u> </u> | 350 | | | |
| Average daily use (kg/day): | | 950 | | | |
| Environment factors not influenced by risk manage | gement | • | | | |
| Flow rate of receiving surface water (m3/d): | - | | d (default 10.000) | | |

Not defined (default = 18,000)

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| Local freshwater dilution factor: | 10 | | | |
|---|---|--|--|--|
| Local marine water dilution factor: | 100 | | | |
| operational conditions | | | | |
| Emission days (days/year): | 365 | | | |
| Release fraction to air from process (initial release prior to RMM): | 1.0E-02 | | | |
| Release fraction to wastewater from process (initial release prior to RMM): | 1.0E-05 | | | |
| Release fraction to soil from process (initial release prior to RMM): | 1.0E-05 | | | |
| Technical onsite conditions and measures to reduce or limit discharges, a | air emissions and releases to soil | | | |
| Treat air emission to provide a typical removal efficiency of (%): | not applicable | | | |
| If there is no discharge to domestic sewage treatment plant, Treat onsite | | | | |
| wastewater (prior to receiving water discharge) to provide the required | 0 | | | |
| removal efficiency of (%): | | | | |
| If discharging to domestic sewage treatment plant, provide the required onsite | | | | |
| wastewater removal efficiency of (%): | 0 | | | |
| Treat soil emission to provide a typical removal efficiency of (%): | 0 | | | |
| Common practices vary across sites thus conservative process release estimates | ates used. If discharging to domestic sewage treatment plant, no onsite | | | |
| wastewater treatment required. | | | | |
| Organisational measures to prevent/limit release from site | | | | |
| Do not apply industrial sludge to natural soils. Sludge should be incinerated, co | ntained or reclaimed. | | | |
| Conditions and measures related to municipal sewage treatment plant | | | | |
| Size of municipal sewage system/treatment plant (m³/d) | 2000 | | | |
| Degradation effectiveness (%) | 95.7 | | | |
| Conditions and measures related to external treatment of waste for dispos | sal | | | |
| External treatment and disposal of waste should comply with applicable local ar | nd/or national regulations. | | | |
| Substance release quantities after risk management measures | | | | |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2.4E+03 | | | | |
| | <u>. </u> | | | |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

| | inhalation | | | mal | Combined |
|-------------------------------------|-----------------------------------|---|--------------------------------------|---|---|
| Process category [PROC] | inhalation exposure (mg/m³) | Risk characterisation ratio (RCR) | dermal exposure (mg/kg bw/day) | Risk characterisation ratio (RCR) | Risk characterisation ratio (RCR) |
| PROC1 | 0.00 | 0.00 | 0.03 | 0.15 | 0.15 |
| PROC2 | 0.50 | 0.50 | 0.03 | 0.12 | 0.62 |
| PROC2 (Storage) | 0.35 | 0.35 | 0.14 | 0.59 | 0.94 |
| PROC3 | 0.70 | 0.70 | 0.03 | 0.15 | 0.85 |
| PROC8a (Maintenance) | 0.85 | 0.85 | 0.03 | 0.12 | 0.97 |
| PROC8b (bulk) | 0.25 | 0.25 | 0.07 | 0.30 | 0.55 |
| PROC8b (Drum/batch transfers) | 0.25 | 0.25 | 0.07 | 0.30 | 0.55 |
| PROC8b (Refuelling) | 0.25 | 0.25 | 0.07 | 0.30 | 0.55 |
| PROC16 | 0.50 | 0.50 | 0.03 | 0.15 | 0.65 |

3.2 Environmental exposure prediction

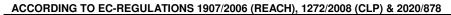
Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| Environmental exposure | STP | freshwater | marine water | soil | freshwater sediment | marine sediment |
|----------------------------|-----------------|--------------|-----------------|---------------------|---------------------|---------------------|
| Predicted Environmental | 2.1E-05 mg/L | 3.1E-03 mg/L | 1.1E-05 mg/L | 3.5E-03 mg/kg ww | 0.15 mg/kg ww | 4.4E-03 mg/kg ww |

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| Exposure (PEC) | | | | | | |
|-----------------------------------|---------|-------|---------|---------|---------|---------|
| Risk characterisation ratio (RCR) | 1.3E-06 | 0.011 | 3.1E-05 | 2.3E-05 | 4.3E-03 | 1.2E-03 |

Human exposure prediction:

| Route of Exposure | Exposure (μg/kg ⁻¹ day ⁻¹) | Risk characterisation ratio (RCR) |
|-------------------|---|-----------------------------------|
| oral | 3.8 | 0.038 |
| inhalation | 0.54 | 5.8E-04 |

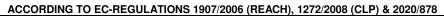
| 4.0 Evaluation guidance to d | ownstream user | | | |
|------------------------------|--|--|--|--|
| For scaling see | are managed to at least Available hazard data Further details on scal industries-libraries.htm Exposure calculated for | do not support the need for a DNEL to be established for other health effects. iing and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-nl). or benzene and assumes that the substance contains 1 % benzene. Arithmetic scaling may h contains < 1 % benzene | | |
| Exposure assessment | Worker | Worker ECETOC TRA | | |
| instrument/tool/method | Environment | The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. | | |

Exposure Scenario 5 – Use of Gasoline (0 – 1 % benzene content) as a fuel- Consumer

| 1.0 Contributing Scenarios | |
|---|---|
| Sector of uses SU | SU21 Consumer uses: Private households (= general public = consumers) |
| Process category [PROC] | not applicable |
| PC13 PC13 (Liquid: Automotive Refuelling) Chemical product category [PC] PC13 (Liquid: Automotive Refuelling) PC13 (Liquid Scooter Refuelling) PC13 (Liquid: Garden equipment - Refuelling) PC13 (Liquid, Garden equipment - Use) | |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC9a ERC9b |
| Specific Environmental Release Categories SPERC | ESVOC SPERC 9.12c.v1 |

| 2.0 Operational conditions and risk management n | neasures | | | | |
|--|------------------|--|---|--|--|
| 2.1 Control of worker exposure | | | | | |
| Product characteristics | | | | | |
| Physical form of product | Liquid with high | volatility. | | | |
| Concentration of substance in product | Covers concent | trations up to 100% (≤ 1 % benzene content | | | |
| Human factors not influenced by risk management | • | | | | |
| Detential expensive area (Skin contact) | PC13 | Liquid: Automotive Refuelling Liquid Scooter Refuelling | 210 cm ² | | |
| Potential exposure area (Skin contact) | F013 | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling | 420 cm ² | | |
| Frequency and duration of use | | | | | |
| Function (hours/Funch) | DO10 | Liquid: Automotive Refuelling; Liquid Scooter Refuelling | 0.05 | | |
| Exposure duration (hours/Event) | PC13 | Liquid, Garden equipment - Use | 0.03 | | |
| | | Liquid: Garden equipment - Refuelling | 2.00 | | |
| Fraguency of use (days per year) | PC13 | Liquid: Automotive Refuelling; Liquid Scooter Refuelling | 52 (Covers frequency up to: weekly use) | | |
| Frequency of use (days per year) | FO13 | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling | 26 (Covers frequency up to: once in two weeks.) | | |
| Amounts used (g/Event) | PC13 | Liquid: Automotive Refuelling Liquid Scooter Refuelling | 37500 3750 | | |

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| | | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling |
|---|-------------------------|---|
| Other operational conditions affecting worke | r exposure | Liquid. Garden equipment - Herdening |
| Area of use | Not defined | |
| Characteristics of the surroundings | PC13 | Liquid: Automotive Refuelling; Liquid Scooter Refuelling; Liquid, Garden equipment - Use Liquid: Garden equipment - Refuelling 34 m³ |
| risk management measures | | |
| Respiratory protection | No specific i | measures identified. |
| Hand and/or Skin protection | No specific i | measures identified. |
| Eye Protection | No specific i | measures identified. |
| 2.2 Control of environmental exposure | | |
| Amounts used | | |
| Fraction of EU tonnage used in region: | | 0.1 |
| Regional use tonnage (tons/year): | | 8.7E+04 |
| Fraction of Regional tonnage used locally: (tons/year) | | 5.0E-04 |
| Annual site tonnage (tons/year): | | 4.4E+01 |
| Average daily use (kg/day): | | 1.2E+02 |
| Environment factors not influenced by risk n | nanagement | |
| Flow rate of receiving surface water (m³/d): | | Not defined (default = 18,000) |
| Local freshwater dilution factor: | | 10 |
| Local marine water dilution factor: | | 100 |
| operational conditions | | |
| Emission days (days/year): | | 365 |
| Release fraction to air from process (initial relea | se prior to RMM): | 1.0E-02 |
| Release fraction to wastewater from process (initial) | | |
| Release fraction to soil from process (initial release | | 1.0E-05 |
| Conditions and measures related to municipal | | |
| Size of municipal sewage system/treatment plan | nt (m³/d) | 2000 |
| Degradation effectiveness (%) | | 95.7 |
| Conditions and measures related to external | | • |
| External treatment and disposal of waste should | | e local and/or national regulations. |
| Substance release quantities after risk mana | | |
| Maximum allowable site tonnage (MSafe) based wastewater treatment removal (kg/d): | on release following to | 31000 |

3. Exposure estimation and reference to its source

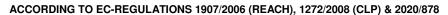
3.1 Human exposure prediction

Yearly Use (Chronic)

| Chemical | inhal | ation | der | Combined | |
|---|--------------------------------|---|-----------------------------------|---|-----------------------------------|
| product category [PC] | inhalation exposure (mg/m³) | Risk characterisation ratio (RCR) | dermal exposure (mg/kg bw/day) | Risk characterisation ratio (RCR) | Risk characterisation ratio (RCR) |
| PC13 (Liquid: Automotive Refuelling) | 0.002 | 0.69 | 0.00 | 0.01 | 0.70 |
| PC13 (Liquid Scooter Refuelling) | 0.001 | 0.46 | 0.00 | 0.01 | 0.47 |
| PC13 (Liquid, Garden equipment - Use) | 0.003 | 0.87 | 0.00 | 0.00 | 0.87 |
| PC13 (Liquid: Garden equipment - Refuelling) | 0.001 | 0.18 | 0.00 | 0.02 | 0.20 |

3.2 Environmental exposure prediction

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Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Naphtha (petroleum), full-range straight-run is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

| Environmental exposure | STP | freshwater | marine water | soil | freshwater sediment | marine sediment |
|--|-----------------|--------------|-----------------|---------------------|---------------------|---------------------|
| Predicted Environmental Exposure (PEC) | 2.6E-05 mg/L | 3.1E-03 mg/L | 1.1E-05 mg/L | 3.5E-03 mg/kg ww | 0.15 mg/kg ww | 4.5E-03 mg/kg ww |
| Risk characterisation ratio (RCR) | 1.6E-06 | 0.011 | 3.1E-05 | 2.4E-05 | 4.3E-03 | 1.2E-05 |

Human exposure prediction:

| Route of Exposure | Exposure (μg/kg ⁻¹ day ⁻¹) | Risk characterisation ratio (RCR) |
|-------------------|---|-----------------------------------|
| oral | 3.8 | 0.038 |
| inhalation | 0.54 | 5.8E-04 |

| 4.0 Evaluation guidance to de | ownstream user | | |
|-------------------------------|---|--|--|
| For scaling see | are managed to at lea Available hazard data Further details on sca industries-libraries.htr Exposure calculated f | Where other risk management measures/operational conditions are adopted, then users should ensure that risk are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-fo industries-libraries.html). Exposure calculated for benzene and assumes that the substance contains 1 % benzene. Arithmetic scaling mabe possible if the batch contains < 1 % benzene | |
| Exposure assessment | Consumer ECETOC TRA | | |
| instrument/tool/method | Environment | The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. | |