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

| 1.1 | Product identifier | | |
|-----|------------------------|--|--|
| | Product name | | |
| | Product description | | |
| | Trade Name | | |
| | Product code | | |
| | CAS No. | | |
| | EC No. | | |
| | REACH Registration No. | | |
| | | | |

Naphtha (petroleum), unsweetened V4008-C7+ unsweetened-Naphtha (petroleum), unsweetened C7+ unsweetened C7+UNSWE 64741-42-0 265-042-6 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 Use of Gasoline (0 - 1 % benzene content) as a 3 16 fuel(Industrial) 19 4 Use of Gasoline (0 - 1 % benzene content) as a fuel(Professional) 5 Use of Gasoline (0 - 1 % benzene content) as a 22 fuel(Consumer)

Uses advised against

1.3 Details of the supplier of the safety data sheet Company Identification

> Telephone Fax E-mail (competent person)

1.4 Emergency telephone number Emergency Phone No. Languages spoken Anything other than the above.

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

+44 (0) 1235 239 670, 24/7 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 Product description According to Regulation (EC) No. 1272/2008 (CLP) V4008-C7+ unsweetened-Naphtha (petroleum), unsweetened

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Hazard Pictogram(s)

Signal Word(s)

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

| 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. |
| 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 |

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



2.3

Description of first aid measures Self-protection of the first aider

H2S Warning:

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.

should be made to help determine controls appropriate to local circumstances.

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.

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4.2

4.3

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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. |
| Skin contact | 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. |
| Eye contact | 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. |
| Ingestion | 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. |
| Most important symptoms and effects, both acute | inhalation: May cause drowsiness or dizziness. Headache, nausea and vomiting. |
| and delayed | 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 |
| Indication of any immediate medical attention and | Treat symptomatically |
| special treatment needed | |
| Notes to a physician: | 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 |

SECTION 5: FIREFIGHTING MEASURES

| 5.1 | Extinguishing media | |
|-----|---|--|
| | Suitable extinguishing media | Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry powder |
| | Unsuitable extinguishing media | Do not use water jet. Direct water jet may spread the fire. |
| 5.2 | Special hazards arising from the substance or mixture | 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 |
| 5.3 | Advice for firefighters | 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.

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

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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 | Environmental precautions | Avoid release to the environment. Do not allow to enter drains, sewers or 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. |
| | Spillages on water or at sea: | Collect as much as possible in clean container for reuse or disposal. 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 of the spillage, and let the substance evaporate naturally. |
| 6.4 | Reference to other sections | See Section: 8,13 |

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

H2S Warning:

7.2 Conditions for safe storage, including any incompatibilities

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

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. Light hydrocarbon vanours can build up in the headspace of containers. These

Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil

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national

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. See Section: 1.2 and/or Exposure Scenario.

storage temperature Storage measures

Incompatible materials7.3 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 r |
| | | 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

| 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 | - |

this product.

8.2 Exposure controls

- 8.2.1 Appropriate engineering controls
- 8.2.2 Individual protection measures, such as personal protective equipment

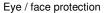
Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, wellventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the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

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

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

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.



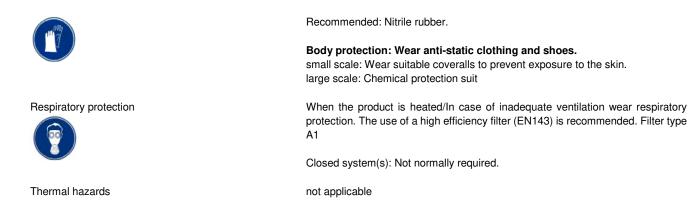


Skin protection

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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 | |
| | Boiling point or initial boiling point and boiling range | < 35 °C | |
| | Flammability | not applicable - Liquid | |
| | Lower and upper explosion limit | Flammable Limits (Lower) (%v/v) 1.4 | |
| | | Flammable Limits (Upper) (%v/v) 7.6 | |
| | Flash point | < -40 °C | |
| | Auto-ignition temperature | > 220 °C | |
| | Decomposition temperature | Not established | |
| | рН | Not established | |
| | Kinematic viscosity | <1 mm²/s @ 20 °C | |
| | Solubility | Immiscible with water. | |
| | Partition coefficient: n-octanol/water (log value) | not applicable. Substance is complex UVCB. | |
| | Vapour pressure | 4 - 240 kPa @ 37.8°C | |
| | Density and/or relative density | 0.62 – 0.88 g/cm³ @ 15 °C | |
| | Relative vapour density | > 2 | |
| | Particle characteristics | Not established | |
| | | | |

9.2 Other information

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. |
| 10.0 | | 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. |
| 10.4 | 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, |

None Known

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SECTION 11: TOXICOLOGICAL INFORMATION

| 11.1 | Information on hazard classes as defined | in | All test data taken from existing ECHA registrations for the substances |
|--------|--|-------------|--|
| | Regulation (EC) No 1272/2008 | | mentioned. |
| | Acute toxicity - Ingestion | | Based upon the available data, the classification criteria are not met. |
| | Acute toxicity - ingestion | | LD50 > 5000 mg/kg bw/day (rat) (OECD 401) |
| | Acute toxicity - Inhalation | | Based upon the available data, the classification criteria are not met. |
| | Acute toxicity - initialation | | LC50 Vapour > 5600 mg/m ³ Air (rat) (OECD 403) |
| | Acute toxicity - Skin contact | | Based upon the available data, the classification criteria are not met. |
| | Acute toxicity - Skill contact | | |
| | Skin corrosion/irritation | | LD50 > 2000 mg/kg bw/day (rabbit) (OECD 402) |
| | Skin corrosion/irritation | | Skin Irrit. 2; Causes skin irritation. |
| | Corious ave domage/invitation | | Irritating to skin. (rabbit) (OECD 404) |
| | Serious eye damage/irritation | | Based upon the available data, the classification criteria are not met. |
| | De animeter en aleire a constria ation | | Not irritating to eyes (rabbit) (OECD 405) |
| | Respiratory or skin sensitisation | | Based upon the available data, the classification criteria are not met. |
| | | | Sensitisation (guinea pig) - Negative (OECD 406) |
| | Germ cell mutagenicity | | 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 |
| | Carcinogenicity | | 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 |
| | Reproductive toxicity | | 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 - Single Exposure | | STOT SE 3; May cause drowsiness or dizziness. |
| | | | Weight of evidence approach |
| | STOT - Repeated Exposure | | 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) |
| | | milalation | Chronic - Systemic effects NOAEC 1402 mg/m ³ |
| | | dermal: | No adverse effect observed. (Mouse) (OECD TG 410) |
| | | donnai. | Chronic - Systemic effects NOAEL 375 mg/kg bw/day |
| | Aspiration hazard | | Asp. Tox. 1; May be fatal if swallowed and enters airways. Harmonised |
| | | | Classification. |
| | | | Viscosity: <1 mm ² /s @ 20 °C |
| 11.2 | Information on other hazards | | |
| 11.2.1 | Endocrine disrupting properties | | This substance does not have endocrine disrupting properties with respect to |
| | | | humans. |
| 11.2.2 | Other information | | None. |

| SECTIO | SECTION 12: ECOLOGICAL INFORMATION | | | | |
|--------|--|---|--|--|--|
| 12.1 | Toxicity Short Term (acute): Long Term (Chronic): | Aquatic Chronic 2; Toxic to aquatic life with long lasting effects. LL50 (Fish) (96hr) 10 mg/l (OCED 203) 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. | | | |
| 12.2 | Persistence and degradability | 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
- 12.6 Endocrine disrupting properties
- 12.7 Other adverse effects

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Substance is complex UVCB. This substance does not contain PBT constituents included in the SVHC candidate list at concentrations above 0.1%. This substance does not have endocrine disrupting properties with respect to non-target organisms. None Known

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 EU Waste Codes: HP3, HP4, HP7, HP10, HP11, HP14

Waste classification according to Directive 2008/98/EC (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 | MILIEUGEVAARLIJK / ENVIRONMENTALLY I /DANGEREUX POUR/ L'ENVIRONNEMENT | HAZARDOUS/ UMWELTGEFÄHREND | | |
| 14.6 | Special precautions for user | See Section: 2 | | | |
| 14.7 | Maritime transport in bulk according | This product is being carried under the scope o | f MARPOL Annex 1. Special Precautions: Refer to | | |
| | to IMO instruments | This product is being carried under the scope of MARPOL Annex 1. Special Precautions: Refer to 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 | | | |

Special Provisions

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 |
| | | system. |
| 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 | ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road |
| 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 |
| LTEL | 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 |
| ES | Exposure Scenario |
| NOAEC | no observed adverse effect concentration |
| NOAEL | No Observed Adverse Effect Level |

| Hazard classification / Classification code: | Hazard Statement(s) |
|---|---|
| Flam. Liq. 1, Flammable liquid, Category 1 | H224: Extremely flammable liquid and vapour. |
| Asp. Tox. 1, Aspiration Toxicity, Category 1 | H304: May be fatal if swallowed and enters airways. |
| Skin Irrit. 2, Skin irritation, Category 2 | H315: Causes skin irritation. |
| Muta. 1B, Germ cell mutagen, Sub-category 1B | H340: May cause genetic defects. |
| Carc. 1B, Carcinogen, Category 1B | H350: May cause cancer. |
| Repr. 2, Reproductive toxicant, Category 2 | H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child. |
| STOT SE 3, Specific target organ toxicity - Single exposure, Category 3 | H336: May cause drowsiness or dizziness. (central nervous system, inhalation) |
| Aquatic Chronic 2, Hazardous to the aquatic environment (Chronic), Category 2 | 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

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

Summary of Parameters

| Physical Parameters | | | | | |
|--|---------------------------------|---------------------------------|---|--|--|
| Vapour pressure (Pa) | | | 4 – 240 @ 37.8 °C (Value used for exposure assessment = 340) | | |
| Partition Coefficient (log K _{OW}) | | | 2.00 - 20.43 | | |
| Aqueous solubilit | ty (mg L ⁻¹) | | 1.6E+03 - 5.1E-18 (Value used for exposure assessment = 2.0E+02) | | |
| Molecular weight | t | | not applicable | | |
| Biodegradability | | | Not defined | | |
| Human Health parameter (DNELs) | | | | | |
| | Short term | inhalation (mg/m ³) | 1100 | | |
| Worker | Short term | dermal (mg/kg bw/day) | not applicable | | |
| vvorker | Lana Tarra | inhalation (mg/m ³) | 3.2 (= 1 ppm)* | | |
| | Long Term | dermal (mg/kg bw/day) | 0.234* | | |
| | | inhalation (mg/m ³) | 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 | 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.

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

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Contributing Scenarios

| Workers | |
|---------|---|
| PROC1 | Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent |
| FROCT | containment conditions. |

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| | 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. 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) |

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 |
| Process category [PROC] | PROC1 PROC2 PROC2 (Storage) PROC3 PROC3 (Sampling) PROC8a (Maintenance) PROC8b (bulk) PROC15 |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC1 ERC2 ERC3 ERC4 ERC5 ERC6a ERC6b ERC6c ERC6d ERC6d ERC7 |

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Specific Environmental Release Categories ESVOC SpERC 1.1b v.1

| 2.0 Operational conditions and risk management me 2.1 Control of worker exposure | easures | | | | |
|--|-------------------------------|------------|---|--|--|
| Product characteristics | | | | | |
| Physical form of product | Liquid with high volatility. | | | | |
| Concentration of substance in product | Covers concentrations up | to 100% | (< 1 % banzana content) | | |
| Human factors not influenced by risk management | Covers concentrations up | 10 100 /6 | | | |
| Potential exposure area | Not defined | | | | |
| Frequency and duration of use | Not defined | | | | |
| Exposure duration per day | Covers daily expessives un | a ta 8 hai | urs (unless stated differently). | | |
| Frequency of use (days per year) | 300 | | dis (unless stated unerentiy). | | |
| Other operational conditions affecting worker expos | | | | | |
| | PROC3, PROC2 (Storage |) | Outdoor | | |
| Area of 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 hygien | e is implemented. Assumes | activities | are at ambient temperature (unless stated differently). | | |
| General measures (skin irritants) | | | | | |
| | | | ar gloves (tested to EN374) if hand contact with substance | | |
| | | n contam | nination immediately. Provide basic employee training to | | |
| prevent/minimise exposures and to report any skin prob | eres that may develop. | | | | |
| General measures (carcinogens) | | | | | |
| | | | on of releases. minimise exposure using measures such as | | |
| | | | down systems and clear transfer lines prior to breaking | | |
| containment. Clean/flush equipment, where possible, pi | rior to maintenance Where the | here is po | otential for exposure: restrict access to authorised persons; | | |
| provide specific activity training to operators to minimise | e exposures; wear suitable g | gloves an | d coveralls to prevent skin contamination; wear respiratory | | |
| | | | ately and dispose of waste safely. Ensure safe systems of | | |
| | | | maintain all control measures. Consider the need for risk | | |
| based health surveillance. | igo nono: nogolarly nopool, | toot and | | | |
| Technical conditions of use | | | | | |
| | | | | | |
| PROC1, PROC2, PROC3 | Handle substance within a | | | | |
| PROC8b (bulk) | | are unde | r containment or extract ventilation. (Efficiency of at least | | |
| | 90 %) | | | | |
| PROC15 | Use fume cupboard. (Effic | iency of a | at least 90 %) | | |
| Organisational measures | | | | | |
| PROC3 (Sampling) | Sample via a closed loop | or other s | system to avoid exposure. (Efficiency of at least 95 %) | | |
| | | | to equipment break-in or maintenance. Retain drain downs | | |
| PROC8a (Maintenance) | | | or for subsequent recycle. Clear spills immediately. | | |
| Theoda (Maintenance) | (inhalation - efficiency of a | | | | |
| Bick management management valated to be man back | · · · · | | 5 /8] | | |
| Risk management measures related to human healt Respiratory protection | | raguirad | | | |
| Respiratory protection | No special measures are i | requirea. | | | |
| | PROC2 | | Wear suitable gloves tested to EN374. (Efficiency of at | | |
| | 111002 | | least 80 %) | | |
| Hand and/or Skin protection | | | Wear chemically resistant gloves (tested to EN374) in | | |
| | PROC8a (Maintenance) | | combination with 'basic' employee training. (Efficiency of | | |
| | | | at least 90 %) | | |
| Eve Protection | No special measures are r | required | | | |
| Other operational conditions affecting worker expos | | . squireu. | | | |
| | | | ten Arrestel etter annen ten e | | |
| Wear suitable coveralls to prevent exposure to the skin. | Glear transfer lines prior to | ae-coupli | 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): 3.1E+06 | | | | | |
| Fraction of Regional tonnage used locally: tons/year | | | 2.0E-03 | | |
| | | | 62,000 | | |
| Average daily use (kg/day) | | 10,000 | | | |
| | | 10,000 | | | |
| Environment factors not influenced by risk manage | | | | | |
| Flow rate of receiving surface water (m ³ /d): Not defined (default = 18,000) | | | | | |
| Local freshwater dilution factor: | 10 | | | | |
| Local marine water dilution factor: | 10 | 00 | | | |
| | | | | | |

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| operational | | | | | | | |
|--|--|------------------------------|------------------------|------------------------|---------------------|----------------------|----------------|
| , | mission days (days/year): | | | | 300 1.0E-03 | | |
| | Release fraction to air from process (initial release prior to RMM): | | | | | | |
| Release fraction to wastewater from process (initial release prior to RMM): Release fraction to soil from process (initial release prior to RMM): | | | 1.0E-05 | | | | |
| Release fract | tion to soil from process | (initial release prio | r to RMM): | 1.0E-05 | d valaaaaa ta aail | | |
| | ssion to provide a typical | | | | u releases to soli | | |
| | | | | 90 | | | |
| | discharge to domestic se | • | | | | | |
| | prior to receiving water d | ischarge) to provid | the required | 0 | 0 | | |
| removal effici | , , | | | | | | |
| | to domestic sewage tre | | ide the required onsit | e 0 | | | |
| | emoval efficiency of (%): | | (()) | - | | | |
| | ission to provide a typica | | | 0 | | | |
| | actices vary across sites | thus conservative | process release esti | mates used. If discl | narging to domestic | sewage treatment pla | ant, no onsite |
| | reatment required. nal measures to prever | t/limit rologeo fre | m sito | | | | |
| | industrial sludge to natu | | | contained or reclaim | ned | | |
| | and measures related t | | | contained of reclaim | | | |
| | cipal sewage system/trea | | | 2000 | | | |
| | effectiveness (%) | | | 95.7 | | | |
| • | and measures related to | o external treatm | ent of waste for dis | | | | |
| | tment and disposal of wa | | | | ulations | | |
| | elease quantities after | | | and/or national reg | | | |
| | owable site tonnage (MS | | | | | | |
| | reatment removal (kg/d): | | ase following total | 530,0000 | | | |
| | | | | | | | |
| 3. Exposure | estimation and referen | ce to its source | | | | | |
| 3.1 Human e | exposure prediction | | | | | | |
| Exposure as | sessment (method/calcul | ation model) | | ECETOC TRA | (benzene content) | | |
| | | | | • | | | |
| | | | alation | | mal | Combined | 1 |
| | Process category | inhalation | Risk | dermal | Risk | Risk | 1 |
| | [PROC] | exposure | characterisation | exposure | characterisation | characterisation | 1 |
| | PROC1 | (mg/m ³) 0.00 | 0.00 | (mg/kg bw/day) 0.03 | 0.15 | ratio (RCR) 0.15 | 1 |
| | PROC2 | 0.50 | 0.50 | 0.03 | 0.13 | 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 | 0.05 | 0.05 | 0.03 | 0.15 | 0.20 | |
| | (Sampling) | 0.00 | 0.00 | 0.00 | 0.15 | 0.20 | |
| l | PROC8a | 0.25 | 0.25 | 0.14 | 0.57 | 0.84 | |
| l | (Maintenance) PROC8b | | | - | | | |
| | (bulk) | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 | l I |
| | 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) | 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 |
| Risk characterisation ratio (RCR) | 2.8E-04 | 1.2E-02 | 1.3E-04 | 2.3E-05 | 6.0E-03 | 1.9E-04 |

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Human exposure prediction:

| Route of Exposure | Exposure (µg/kg ⁻¹ day ⁻¹) | Risk characterisation ratio (RCR) |
|-------------------|---|--------------------------------------|
| oral | 3.9 | 3.9E-02 |
| inhalation | 0.68 | 7.3E-04 |

| 4.0 Evaluation guidance to c | lownstream user | |
|---|---|---|
| For scaling see | are managed to at leas 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. ling 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 |
| Exposuro assossmont | Worker | ECETOC TRA |
| Exposure assessment 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 (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 manage 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 u | p to 8 hours (unless stated differently). |
| Frequency of use (days per year) | 300 | |
| Other operational conditions affecting work | er exposure | |
| A | 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 | ; ; | |
| Assumes a good basic standard of occupationa | I hygiene is implemented. Assume | s activities are at ambient temperature (unless stated differently). |
| General measures (skin irritants) | | |
| Avoid direct skin contact with product. Identify | potential areas for indirect skin cont | act. Wear gloves (tested to EN374) if hand contact with substance |
| likely. Clean up contamination/spills as soon | as they occur. Wash off any skir | contamination immediately. Provide basic employee training to |
| prevent/minimise exposures and to report any s | kin problems that may develop. | |
| General measures (carcinogens) | | |
| | بطلبيه (المعالية مسجلاته المساميرا معامه | alimination of values an inimized everyoutry using measures such |

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;

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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 | | | |
| PROC3 (Sampling) | Sample via a closed loop or other system to avoid exposure. (Efficiency of at least 95 %) | | |
| PROC8b (bulk), PROC8b (Drum/batch transfers) | Ensure material transfers are under containment or extract ventilation. (Efficiency of at least 97 %) | | |
| PROC15 | Use fume cupboard. | (Efficiency of | f at least 90 %) |
| Organisational measures | - | | |
| | | age pending | r to equipment break-in or maintenance. Retain drain disposal or for subsequent recycle. Clear spills t 90 %) |
| Risk management measures related to human hea | alth | | |
| Respiratory protection | No special measures | are required | |
| | PROC2, PROC2 (Sto | orage) | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) |
| Hand and/or Skin protection | PROC8a (Maintenand | ce) | 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 | i. |
| Other operational conditions affecting worker exp | | | |
| Wear suitable coveralls to prevent exposure to the sk | in. Clear transfer lines pr | ior to de-cou | pling. Avoid dip sampling. |
| 2.2 Control of environmental exposure | - F | | |
| Amounts used | | | |
| Fraction of EU tonnage used in region: | | 0.1 | |
| Regional use tonnage (tons/year): | | 4.0E+05 | |
| Fraction of Regional tonnage used locally: (tons/year) | | 7.4E-02 | |
| Annual site tonnage (tons/year): | | 3.0E+04 | |
| Average daily use (kg/day): | | 1.0E+05 | |
| Environment factors not influenced by risk manage | gement | | |
| Flow rate of receiving surface water (m ³ /d): | | Not define | ed (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 pri | or to RMM): | 2.5E-02 | |
| Release fraction to wastewater from process (initial release prior to RMM): | | 1.1E-03 | |
| Release fraction to soil from process (initial release prior to RMM): | | 1.0E-04 | |
| Technical onsite conditions and measures to redu | | air emissio | ns and releases to soil |
| Treat air emission to provide a typical removal efficier | | 0 | |
| If there is no discharge to domestic sewage treatment | t plant, Treat onsite | | |
| wastewater (prior to receiving water discharge) to pro removal efficiency of (%): | · | 95.3 | |
| If discharging to domestic sewage treatment plant, pre- | ovide the required | 0 | |
| onsite wastewater removal efficiency of (%): | | v | |
| Treat soil emission to provide a typical removal efficie | | 0 | |
| wastewater treatment required. | - | ates used. If | discharging to domestic sewage treatment plant, no onsite |
| Organisational measures to prevent/limit release | | | |
| Do not apply industrial sludge to natural soils. Sludge | | ontained or r | eclaimed. |
| Conditions and measures related to municipal set | <u> </u> | 2000 | |
| Size of municipal sewage system/treatment plant (m ³ / | u) | 2000 | |
| Degradation effectiveness (%) | and a famous of the till | 95.7 | |
| Conditions and measures related to external treat | | | el vervule Verve |
| External treatment and disposal of waste should com | | and/or nation | al regulations. |
| Substance release quantities after risk manageme Maximum allowable site tonnage (MSafe) based on re wastewater treatment removal (kg/d): | | 1.1E+05 | |
| | | | |

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3. Exposure estimation and reference to its source

3.1 Human exposure prediction Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

| | inhalation | | | dermal | | |
|----------------------------------|-----------------------------------|--------------------------------------|---|--------------------------------------|---|--|
| 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 | Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not 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-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 environmental exposure with the Petrorisk model. | |

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 |

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



| Process category [PROC] | PROC1 PROC2 PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (bulk) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) 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 |

| 2.1 Control of worker exposure Product Amatcheristics Liquid with high volatility. Concentration of product Covers concentrations up to 100% (s 1 % benzene content). Human factors not influenced by risk management Potential exposure area Protenci and or substance in product Covers daily exposures up to 8 hours (unless stated differently). Frequency and duration per day Covers daily exposures up to 8 hours (unless stated differently). Frequency and duration per day Covers daily exposures up to 8 hours (unless stated differently). Cher operational conditions affecting worker exposure All other PROC's Not defined (default = Indoor) Characteristics of the surroundings Not defined Resumes a good basic standard of occupational hygion is implemented. Assumes activities are at ambient temperature (unless stated differently). General measures (skin irritants) Not defined Coveral measures (skin irritants) Avoid diret skin contaxt with product. Identify potential areas for indirect skin contamination immediately. Provide basic employee training to prevent minime exposures 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. ClearNitus equipument, where poscible, prot to maintense exposure and clear transfer lines prior to bre | 2.0 Operational conditions and risk management measures | | | | | |
|--|---|---|---|--|--|--|
| Physical form of product Liquid with high volatility. Concentration of substance in product Covers concentrations up to 100% (5 1 % benzene content) Human factors not influenced by risk management Not defined Prequency and duration of use Exposure area Exposure duration per day 300 Other operational conditions affecting worker exposure Outdoor Area of use All other PROC's Not defined (default = indoor) Characteristics of the surroundings Not defined Outdoor Central measures applicable to all activities Assumes a qood basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently). General measures (skin irritants) All other PROC's Not defined Avoid direct shin orndurit, dentify 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 greventrimining exposures and to report any skin problems that may develop. Consider technical advances and proces upgrades (including automation) for the elimination of releases. minimise exposure using measures such as olear transfer lines prior to breaking containt where possible, prior to maintenance. Where there is potential for exposure: respiratory provide basic standarding exposures. Thespreaking a | 2.1 Control of worker exposure | | | | | |
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| 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, CStorage), PROC3, PROC3, PROC3 (Additive) PROC8b (bulk), PROC8b (Drum/batch transfers), PROC8b (Refuelling aircraft) PROC8a (Maintenance) 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. (Efficiency of at least 86 %) Risk management measures related to human health Respiratory protection No special measures are required. PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. PROC8a (Maintenance) PROC8a (Maintenance) Use of the operational conditions affecting worker exposure No special measures are required. | | | | | | |
| 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 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. (Efficiency of at least 86 %) Risk management measures related to human health Respiratory protection No special measures are required. PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. PROC8a (Maintenance) PROC8a (Maintenance) Vear 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 No special measures are required. | • | o | | | | |
| 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 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. (Efficiency of at least 86 %) Risk management measures related to human health Respiratory protection No special measures are required. Hand and/or Skin protection PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. PROC8a (Maintenance) Wear suitable gloves tested to EN374. (Efficiency of at least 90 %) Eye Protection No special measures are required. PROC8a (Maintenance) Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 90 %) | , , , , , , , , , , , , , , , , , , , | ge risks. Regularly inspect, test and | maintain all control measures. Consider the need for risk | | | |
| 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 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. (Efficiency of at least 86 %) Risk management measures related to human health Respiratory protection No special measures are required. PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. PROC8a (Maintenance) 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 No special measures are required. | based health surveillance. | | | | | |
| PROC16, PROC16 (Additive) Prior to the 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 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. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. PROC8a (Maintenance) PROC8a (Maintenance) Vear suitable gloves tested to EN374. (Efficiency of at least 80 %) Hand and/or Skin protection No special measures are required. 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 No special measures are required. | Technical conditions of use | | | | | |
| PROC8b (Refuelling), PROC8b (Refuelling aircraft) 90 %) Organisational measures 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. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. Respiratory protection No special measures are required. Hand and/or Skin protection PROC8a (Maintenance) Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) 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 No special measures are required. | | Handle substance within a closed | system. | | | |
| PROC8b (Refuelling), PROC8b (Refuelling aircraft) 90 %) Organisational measures 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. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. Respiratory protection No special measures are required. Hand and/or Skin protection PROC8a (Maintenance) Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) PROC8a (Maintenance) PROC8a (Maintenance) Vear 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 No special measures are required. | PROC8b (bulk), PROC8b (Drum/batch transfers), | Ensure material transfers are under | r containment or extract ventilation. (Efficiency of at least | | | |
| Organisational measures 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. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. Respiratory protection No special measures are required. Hand and/or Skin protection PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) 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 No special measures are required. | | 90 %) | | | | |
| PROC8a (Maintenance) 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. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. Respiratory protection No special measures are required. Hand and/or Skin protection PROC2 Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) 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 No special measures are required. | Organisational measures | , | | | | |
| PROC8a (Maintenance) in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. (Efficiency of at least 86 %) Risk management measures related to human health No special measures are required. Respiratory protection No special measures are required. Hand and/or Skin protection 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. Veas suitable gloves tested to EN374. (Efficiency of at least 90 %) Other operational conditions affecting worker exposure No special measures are required. Veas suitable gloves tested to EN374. (Efficiency of at least 90 %) | | Drain down and flush system prior | to equipment break-in or maintenance. Retain drain downs | | | |
| (Efficiency of at least 86 %) Risk management measures related to human health Respiratory protection No special measures are required. Hand and/or Skin protection 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 No special measures are required. | PPOC8a (Maintonanco) | | | | | |
| Risk management measures related to human health Respiratory protection No special measures are required. Hand and/or Skin protection 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 No special measures are required. | rhocoa (Maintenance) | | or for subsequent recycle. Clear spills infinediately. | | | |
| Respiratory protection No special measures are required. Hand and/or Skin protection 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 No special measures are required. | Diek menementen er en tete date herre dat | | | | | |
| 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 | X | | | | | |
| Hand and/or Skin protection PROC2 least 80 %) 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 Veast 80 % | nespiratory protection | ino special measures are required. | | | | |
| PROC8a (Maintenance) combination with 'basic' employee training. (Efficiency of at least 90 %) Eye Protection No special measures are required. Other operational conditions affecting worker exposure Vector | | PROC2 | | | | |
| PROC8a (Maintenance) combination with 'basic' employee training. (Efficiency of at least 90 %) Eye Protection No special measures are required. Other operational conditions affecting worker exposure Vector | Hand and/or Skin protection | | Wear chemically resistant gloves (tested to EN374) in | | | |
| Eye Protection No special measures are required. Other operational conditions affecting worker exposure | | | | | | |
| Eye Protection No special measures are required. Other operational conditions affecting worker exposure | | T HOODA (Maintenance) | | | | |
| Other operational conditions affecting worker exposure | Fue Bratastian | No openial management are required | al 15a31 30 /0) | | | |
| | | | | | | |
| Wear suitable coveralls to prevent exposure to the skin. Clear transfer lines prior to de-coupling. Avoid dip sampling. | | | | | | |
| | Wear suitable coveralls to prevent exposure to the skin. | Clear transfer lines prior to de-coupl | ing. Avoid dip sampling. | | | |

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|--|--|
| | |
| 2.2 Control of environmental exposure | |
| Amounts used | 1 |
| 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 management | · |
| Flow rate of receiving surface water (m ³ /d): | Not defined (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 release prior to RMM): | 1.0E-05 |
| Release fraction to soil from process (initial release prior to RMM): | 0 |
| Technical onsite conditions and measures to reduce or limit discharges, a | ir emissions and releases to soil |
| Treat air emission to provide a typical removal efficiency of (%): | 95.0 |
| If there is no discharge to domestic sewage treatment plant, Treat onsite | |
| wastewater (prior to receiving water discharge) to provide the required | 42.3 |
| 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 estimate | tes 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, cor | ntained or reclaimed. |
| Conditions and measures related to municipal sewage treatment plant | 1 |
| Size of municipal sewage system/treatment plant (m ³ /d) | 2000 |
| Degradation effectiveness (%) | 95.7 |
| Conditions and measures related to external treatment of waste for dispos | |
| External treatment and disposal of waste should comply with applicable local an | d/or national regulations. |
| Substance release quantities after risk management measures | |
| Maximum allowable site tonnage (MSafe) based on release following total | 4.30E+06 |
| wastewater treatment removal (kg/d): | |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

| | inhalation | | | dermal | | | |
|-------------------------------------|-----------------------------------|---|--------------------------------------|---|---|--|--|
| 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 (Drum/batch transfers) | 0.15 | 0.15 | 0.07 | 0.30 | 0.45 | | |
| 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 | | |

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| | PROC16 (Additive) | 0.2 | 0.25 0.25 | | 0.03 | | 0.15 | 0.40 | |
|---|---|----------------|-------------------|----------------------|-----------------------------------|---------|--|---------------------|----------------|
| .2 Environ | mental exposure p | rediction | | | | | | | |
| | sessment (method/c | | del) | | | | bon Block Method exposure with the Pe | | d to calcula |
| laphtha (pe | etroleum), full-range | straight-run i | s a hydrocarb | on UVCB. TI | | | ck method is used | | o calculate t |
| nvironment | al toxicity (HC5) of dividual environmen | each group of | components i | in the substanc | e. These are | used | to estimate the envir | ronmental risk for | the substand |
| | Environmental exposure | STP | freshwate | r marin water | - soi | il | freshwater sediment | marine sediment | |
| | Predicted Environmental Exposure (PEC) | 0.18 mg/L | 3 mg/L 0.018 mg/L | | 3 4.7E- mg/kg | | 0.22 mg/kg ww | 7.2E-03 mg/kg ww | |
| Risk characterisation 0.011 ratio (RCR) | | 0.051 | 5.1E-0 | 3 3.6E- | -03 | 0.074 | 7.0E-03 | | |
| uman expo | sure prediction: | | | | | | | | |
| | Rout | e of Exposure | e Ex | αposure (μg/kg | ⁻¹ day ⁻¹) | R | tisk characterisatior (RCR) | n ratio | |
| | | oral | | 4.6 | - | | 0.046 | | |
| | | inhalation | | 1.3E+02 | | | 0.15 | | |
| 0 Evaluati | on guidance to dov | | | | | | | | |
| Where other risk managemen are managed to at least equiv Available hazard data do not s For scaling see Further details on scaling and | | | t equivalent lev | els. | | | | | |
| | | | ng and control t | | | | | | |
| | | Exposure | | , r benzene and a | | the sub | bstance contains 1 % | benzene. Arithme | etic scaling m |
| | | | ole if the batch | contains < 1 % | | | | | |
| xposure as | | Worker | | | C TRA | | Method has been u | read to calculate | environmor |
| instrument/tool/method E | | Environn | nent | | re with the Pe | | | iseu lu calculale | environiner |

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 (bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) PROC16 |
| Chemical product category [PC] | not applicable |
| Article categories [AC] | not applicable |
| Environmental release categories [ERC] | ERC9a ERC9b |
| Specific Environmental Release Categories SPERC | ESVOC SPERC 9.12b.v1 |

exposure with the Petrorisk model.

| 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 management | | | | |

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| Potential exposure area | Not defined | | | | |
|---|---|--|---|--|--|
| Frequency and duration of use Exposure duration per day | Covers daily exposure | s up to 8 hor | urs (unless stated differently). | | |
| Frequency of use (days per year) | 300 | | | | |
| Other operational conditions affecting worker expo | | | | | |
| 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 hygien | te is implemented. Assun | nes activities | are at ambient temperature (unless stated differently). | | |
| | y occur. Wash off any | | ar gloves (tested to EN374) if hand contact with substance ination immediately. Provide basic employee training to | | |
| General measures (carcinogens) | | | | | |
| | | | n of releases. minimise exposure using measures such as | | |
| | | | down systems and clear transfer lines prior to breaking | | |
| provide specific activity training to operators to minimis | e exposures; wear suitat | ble gloves an | otential for exposure: restrict access to authorised persons; d coveralls to prevent skin contamination; wear respiratory ately and dispose of waste safely. Ensure safe systems of | | |
| · · · · · | age risks. Regularly insp | ect, test and | maintain all control measures. Consider the need for risk | | |
| based health surveillance. | | | | | |
| Technical conditions of use | | | | | |
| PROC1, PROC2, PROC2 (Storage), PROC3, PROC16 | Handle substance with | | · | | |
| PROC2 (Storage) | - | - | I 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 transf 90 %) | fers are under containment or extract ventilation. (Efficiency of at least | | | |
| Organisational measures | | | | | |
| PROC8a (Maintenance) | | ding disposal | to equipment break-in or maintenance. Retain drain downs or for subsequent recycle. Clear spills immediately. | | |
| Risk management measures related to human heal | | | | | |
| Respiratory protection | No special measures a | are required. | | | |
| | PROC2 | | Wear suitable gloves tested to EN374. (Efficiency of at least 80 %) | | |
| Hand and/or Skin protection | PROC8a (Maintenanc | e) | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 98 %) | | |
| Eye Protection | No special measures a | are required. | | | |
| Other operational conditions affecting worker expo | sure | | | | |
| Wear suitable coveralls to prevent exposure to the skin | . Clear transfer lines prio | r to de-coupli | 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): | | 6.9E+04 | | | |
| Fraction of Regional tonnage used locally: (tons/year) | | 5.0E-04 | | | |
| Annual site tonnage (tons/year): | | 350 | | | |
| Average daily use (kg/day): 950 | | | | | |
| Environment factors not influenced by risk manage | ement | | | | |
| Flow rate of receiving surface water (m ³ /d): | | Not defined (default = 18,000) | | | |
| Local freshwater dilution factor: | | 10 | | | |
| Local marine water dilution factor: 100 | | | | | |
| operational conditions | | | | | |
| Emission days (days/year): 365 | | | | | |
| | | 1.0E-02 | | | |
| Release fraction to air from process (initial release prior | | | | | |
| Release fraction to wastewater from process (initial rele | ease prior to RMM): | 1.0E-05 | | | |
| Release fraction to wastewater from process (initial release fraction to soil from process (initial release price fraction to soil from process fraction to soil | ease prior to RMM): or to RMM): | 1.0E-05 1.0E-05 | and releases to soll | | |
| Release fraction to wastewater from process (initial rele | ease prior to RMM): or to RMM): ce or limit discharges, a | 1.0E-05 1.0E-05 | | | |

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| | discharge to domes | | | | | 0 | | | | |
|---|---|---------------|-----------------------|------------|---------------------|------------------|---------------------|---------------------------------|---------------------------------|---------------|
| | wastewater (prior to receiving water discharge) to provide the required | | | | | | | | | |
| removal effici | ency of (%): to domestic sewag | a traatmant r | lant provi | do tho ro | wired enait | _ | | | | |
| | emoval efficiency of | | plant, provi | de lhe red | Juirea onsite | e 0 | | | | |
| | ission to provide a t | · · / | al officiono | v of (%). | | 0 | | | | |
| | | | | , | release esti | | ised If disc | harging to domestic | sewage treatment pl | ant no onsite |
| wastewater tr | eatment required. | | | • | 0.0000 000 | matoo | | larging to domobilo | contago acathoni pi | |
| | nal measures to pr | | | | | | | | | |
| | industrial sludge to | | | | | contain | ed or reclaim | ned. | | |
| | and measures relativity in the sewage system | | | - | ient plant | 20 | 00 | | | |
| | effectiveness (%) | nieaineni p | iani (myu) | | | 95 | | | | |
| | and measures relation | ted to exterr | nal treatm | ent of wa | ste for disr | | .1 | | | |
| | ment and disposal | | | | | | national reg | ulations. | | |
| - | elease quantities a | | | | | | | | | |
| Maximum allo | owable site tonnage | (MSafe) bas | | | | 24 | 4E+03 | | | |
| wastewater tr | eatment removal (k | g/d): | | | | 2. | | | | |
| 3 Exposure | estimation and ref | erence to ite | s source | | | | | | | |
| | xposure prediction | | Source | | | _ | | | | |
| | sessment (method/c | | odel) | | | EC | CETOC TRA | (benzene content) | | |
| | | | | | | | | | | |
| | | | | alation | | | | rmal | Combined | |
| | Process catego | - | alation | - | lisk | - | ermal | Risk | Risk | |
| | [PROC] | | osure g/m³) | | terisation (RCR) | | posure g bw/day) | characterisation ratio (RCR) | characterisation ratio (RCR) | |
| | PROC1 | |).00 | | 0.00 | (iiig/i | 0.03 | 0.15 | 0.15 | |
| | PROC2 | 0 |).50 | C | .50 | | 0.03 | 0.12 | 0.62 | - |
| | PROC2 | 0 |).35 | C | .35 | | 0.14 | 0.59 | 0.94 | |
| | (Storage) PROC3 | |).70 | 0 | .70 | | 0.03 | 0.15 | 0.85 | |
| | PROC8a | | - | - | - | | | | | |
| | (Maintenance) | (|).85 | U | .85 | | 0.03 | 0.12 | 0.97 | - |
| | PROC8b | 0 |).25 | C | .25 | | 0.07 | 0.30 | 0.55 | |
| | (bulk) PROC8b | | | | | | | | | |
| | (Drum/batch | C |).25 | C | .25 | | 0.07 | 0.30 | 0.55 | |
| | transfers) | | | | | | | | | |
| | PROC8b (Refuelling) | C |).25 | C | .25 | | 0.07 | 0.30 | 0.55 | |
| | PROC16 | |).50 | | .50 | | 0.03 | 0.15 | 0.65 | • |
| | FNUCIO | (| 0.50 | U | .50 | | 0.03 | 0.15 | 0.65 |] |
| 3.2 Environn | nental exposure pr | ediction | | | | | | | | |
| | essment (method/c | | odel) | | | Th | e Hydrocai | bon Block Method | has been used | to calculate |
| | | | | | | | | exposure with the Pe | | |
| Naphtha (per | troleum), full-range | straight-run | is a hydi | ocarbon | UVCB. If | ne hydr o Tho | ocarbon blo | ick 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 | STP | fresh | water | marine | | soil | freshwater | marine | |
| | Predicted | | | | water | | | sediment | sediment | - |
| | Environmental | 2.1E-05 | 215.0 | 2 ma/l | 1.1E-0 | 5 | 3.5E-03 | 0.15 mg/kg www | 4.4E-03 | |
| | Exposure | mg/L | g/L 3.1E-03 mg/L mg/L | | | mg/kg ww | 0.15 mg/kg ww | mg/kg ww | | |
| | (PEC) Risk | | | | | | | | | 4 |
| | characterisation | 1.3E-06 | 0.0 |)11 | 3.1E-0 | 5 | 2.3E-05 | 4.3E-03 | 1.2E-03 | |
| | ratio (RCR) | | | | | | | | | |
| l | | | | | | | | | | |
| Human exposure prediction: | | | | | | | | | | |

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

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C7+ unsweetened V4008

| | inhalation | 0.54 | 5.8E-04 | |
|---------------------|------------------------|------|---------|--|
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 10 Evaluation guida | nee to downstream user | | | |

| 4.0 Evaluation guidance to downstream user | | | | | |
|---|---|--|--|--|--|
| | Where other risk managemen | Where other risk management measures/operational conditions are adopted, then users should ensure that risks | | | |
| | are managed to at least equiv | alent levels. | | | |
| | 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 | | | | |
| Experiere accessment | Worker | ECETOC TRA | | | |
| Exposure assessment 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 | | |
| Chemical product category [PC] | PC13 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 | S ESVOC SPERC 9.12c.v1 | | |

| 2.0 Operational conditions and risk manage | ment measures | | | | |
|---|---------------|--|---|--|--|
| 2.1 Control of worker exposure Product characteristics | | | | | |
| Physical form of product | Liquid with h | Liquid with high volatility. | | | |
| Concentration of substance in product | | entrations up to 100% (≤ 1 % benzene conten | t) | | |
| Human factors not influenced by risk manage | gement | | | | |
| Potential exposure area (Skin contact) | PC13 | Liquid: Automotive Refuelling Liquid Scooter Refuelling | 210 cm ² | | |
| | F013 | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling | 420 cm ² | | |
| Frequency and duration of use | | | | | |
| | D 010 | 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 | | |
| Frequency of use (days per year) | PC13 | Liquid: Automotive Refuelling; Liquid Scooter Refuelling | 52 (Covers frequency up to: weekly use) | | |
| | FCIS | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling | 26 (Covers frequency up to: once in two weeks.) | | |
| | PC13 | Liquid: Automotive Refuelling | 37500 | | |
| Amounts used (g/Event) | | Liquid Scooter Refuelling | 3750 | | |
| Amounts used (g/Event) | F013 | Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling | 750 | | |
| Other operational conditions affecting work | er exposure | · · · | | | |
| Area of use | Not defined | | | | |
| Characteristics of the surroundings | PC13 | Liquid: Automotive Refuelling; | Outdoor | | |

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Vitol

| C7+ | unsweetened | V4008 |
|-----|-------------|-------|
|-----|-------------|-------|

| | Liquic | d Scooter Refuelling; | | |
|---|---|--------------------------------|-------------------|--|
| | | d, Garden equipment - Use | | |
| | | | 34 m ³ | |
| rick monogoment moscures | Liquid: Garden equipment - Refuelling 34 m ³ | | 54 111- | |
| risk management measures Respiratory protection | No specific measures | identified | | |
| Hand and/or Skin protection | No specific measures | | | |
| Eye Protection | No specific measures | | | |
| 2.2 Control of environmental exposure | No specific measures | identified. | | |
| 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 managen | nent | | | |
| Flow rate of receiving surface water (m ³ /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 release prior to RMM): | | 1.0E-02 | | |
| Release fraction to wastewater from process (initial relea | | 1.0E-05 | | |
| Release fraction to soil from process (initial release prior to RMM): | | 1.0E-05 | | |
| Conditions and measures related to municipal sewage | / / | | | |
| Size of municipal sewage system/treatment plant (m ³ /d) | | 2000 | | |
| Degradation effectiveness (%) | | 95.7 | | |
| Conditions and measures related to external treatme | nt of waste for disposa | 1 | | |
| External treatment and disposal of waste should comply | with applicable local and | /or national regulations. | | |
| Substance release quantities after risk management | | | | |
| Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): | | 31000 | | |

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model) ECE

ECETOC TRA (benzene content)

Yearly Use (Chronic)

| Chemical | inhalation | | der | mal | 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 | | | | | |
| Exposure assessment (method/calculation model) | | | , | arbon Block Method al exposure with the Peti | |



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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 downstream user | | | | |
|---|---|--|--|--|
| For scaling see | Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not 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-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 instrument/tool/method | Consumer | ECETOC TRA | | |
| | Environment | The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model. | | |