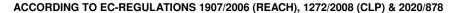
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Naphtha (petroleum), hydrotreated light

Product description V4044-Mogas / Naphtha hydrotreated light-Naphtha (petroleum),

hydrotreated light

Trade Name Mogas / Naphtha hydrotreated light

Product code NAPLHYDR, V4044

CAS No. 64741-42-0 EC No. 265-042-6

REACH Registration No. 01-2119474679-18-xxxx

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

Identified Use(s)

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

Uses advised against Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification Vitol SA

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

1.4 Emergency telephone number

E-mail (competent person)

Telephone

Fax

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

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

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

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

Aquatic Chronic 2; H411

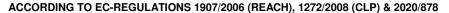
2.2 Label elements According to Regulation (EC) No. 1272/2008 (CLP)

Product description V4044-Mogas / Naphtha hydrotreated light-Naphtha (petroleum),

hydrotreated light

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Hazard Pictogram(s)









Signal Word(s) Danger

Hazard Statement(s)

H224: Extremely flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation. H340: May cause genetic defects. H350: May cause cancer.

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

child.

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

H411: Toxic to aquatic life with long lasting effects.

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

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

ignition sources. No smoking.

P273: Avoid release to the environment.

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

protection/hearing protection.

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

P331: Do NOT induce vomiting.

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

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

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

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

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

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

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

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

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

H2S Warning:

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inhalation IF INHALED: If b

Skin contact

Eye contact

Ingestion

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed

Notes to a physician:

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

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

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

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

Eye contact: Causes serious eye irritation.

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

Treat symptomatically..

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

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media

5.2 Special hazards arising from the substance or mixture

5.3 Advice for firefighters

Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry powder

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

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

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

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

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

See Section: 8,13

SECTION 7: HANDLING AND STORAGE

Reference to other sections

7.1 Precautions for safe handling

6.4

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.

H2S Warning:

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7.2 Conditions for safe storage, including any incompatibilities

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

Stable at ambient temperatures.

Suitable containers: Stainless steel, Mild steel

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

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

storage temperature Storage measures

Incompatible materials

Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

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

8.1.2 Biological Limit Value

Not established

8.1.3 PNECs and DNELs

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

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

8.2 Exposure controls

8.2.1 Appropriate engineering controls

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

8.2.2 Individual protection measures, such as personal protective equipment

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

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

Eye / face protection Use eye pr



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

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

Recommended: Nitrile rubber.

Body protection: Wear anti-static clothing and shoes.

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

large scale: Chemical protection suit

Respiratory protection



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

Closed system(s): Not normally required.

Thermal hazards not applicable

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

> Physical state Liquid Colour Colourless Odour Hydrocarbon Melting point/freezing point < - 60 °C 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 < -40 °C

Flash point Auto-ignition temperature > 220 °C Decomposition temperature Not established рΗ Not established

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

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

4 - 240 kPa @ 37.8°C Vapour pressure 0.62 - 0.88 g/cm3 @ 15 °C Density and/or relative density

> 2

Relative vapour density

Particle characteristics Not established

9.2 Other information None Known

SECTION 10: STABILITY AND REACTIVITY

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

Product may release Hydrogen Sulphide.

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

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

of ignition and flashback. Product may release Hydrogen Sulphide. Conditions to avoid 10.4

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

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

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

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

COx, H2S, SOx,

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in

Regulation (EC) No 1272/2008

Acute toxicity - Ingestion

Acute toxicity - Inhalation

Acute toxicity - Skin contact

Skin corrosion/irritation

Serious eye damage/irritation

. .

Respiratory or skin sensitisation

Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity

STOT - Single Exposure

STOT - Repeated Exposure

Aspiration hazard

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

11.2.2 Other information

12.2

All test data taken from existing ECHA registrations for the substances

mentioned.

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

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

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

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

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

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

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

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

Not irritating to eyes (rabbit) (OECD 405)

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

Sensitisation (guinea pig) - Negative (OECD 406)

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

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

benzene

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

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

benzene

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

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

Toluene and/Or n-Hexane

STOT SE 3; May cause drowsiness or dizziness.

Weight of evidence approach

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

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

inhalation: No adverse effect observed (rat) (OECD 453)

Chronic - Systemic effects NOAEC 1402 mg/m³ No adverse effect observed. (Mouse) (OECD TG 410)

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

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

Classification.

Viscosity: <1 mm²/s @ 20 °C

This substance does not have endocrine disrupting properties with respect to

humans. None

SECTION 12: ECOLOGICAL INFORMATION

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

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

dermal:

Long Term (Chronic):

According to the EU CLP Regulation (EC No. 1272/2008) criteria, substances in the low boiling point naphtha category are classified as Chronic Category 2 (H411) for the environment based on acute invertebrate and alga toxicity.

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 Substance is complex UVCB. This substance does not contain PBT constituents

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

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

non-target organisms.

12.7 Other adverse effects None Known

SECTION 13: DISPOSAL CONSIDERATIONS

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

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

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

regional waste disposal company. Waste code: 13 07 01 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+(N2, CMR,F)

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

/DANGEREUX POUR/ L'ENVIRONNEMENT

Special precautions for user 14.6 See Section: 2

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

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

needs to comply with, in connection with transport.

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

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

Limited Quantity: 500 ml

Special Provisions 664

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental

regulations/legislation specific for the substance or

mixture

15.1.1 **EU** regulations

Seveso Upper Tier: 25000 tonnes

Lower Tier: 2500 tonnes

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

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

15.1.2 **National regulations**

> Germany Wassergefährdungsklasse (Germany). WGK number: 3

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

annexes for exposure scenarios detailing use specific exposure controls.

SECTION 16: OTHER INFORMATION

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

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References:

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

Literature References:

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

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

Legend

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

DNEL Derived no effect level

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

I TFI Long term exposure limit

PBT PBT: Persistent. Bioaccumulative and Toxic

PNEC Predicted No Effect Concentration

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals

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

STEL Short term exposure limit

vPvB vPvB: very Persistent and very Bioaccumulative

OECD Organisation for Economic Cooperation and Development

FS Exposure Scenario

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

Hazard classification / Classification code:

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

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

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

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

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

Category 2

Hazard Statement(s)

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

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

H350: May cause cancer.

H361fd: Suspected of damaging fertility. Suspected of damaging the

unborn child.

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

inhalation)

H411: Toxic to aquatic life with long lasting effects.

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

Disclaimers

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

Summary of Parameters

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

Environmental parameter (PNECs)

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

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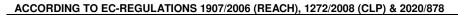
Number	Title	Page:
Exposure Scenario 1	Distribution of Naphtha (petroleum), full-range straight-run (0 - 1 % benzene content)	11
Exposure Scenario 2	Formulation and (re)packing of Naphtha (petroleum), full-range straight-run (0 – 1 % benzene content)	14
Exposure Scenario 3	Use of Gasoline (0 – 1 % benzene content) as a fuel- Industrial	17
Exposure Scenario 4	Use of Gasoline (0 − 1 % benzene content) as a fuel- Professional	19
Exposure Scenario 5	Use of Gasoline (0 – 1 % benzene content) as a fuel- Consumer	22

Contributing Scenarios

Workers

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

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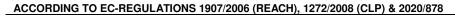
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent
FROCT	containment conditions.
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with
	equivalent containment conditions
PROC2 (Storage)	Use in closed, continuous process with occasional controlled exposure. Bulk product storage.
	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or
PROC3	processes with equivalent containment condition.
	Use in closed, continuous process with occasional exposure.
PROC3 (Sampling)	Sample collection
	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8a (Maintenance)	Clean down and maintenance of vessels and containers.
DD0001 (L. II.)	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC8b (bulk)	Bulk transfer in a closed system
PROC8b (Drum)	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Phocob (Druill)	Drum or batch transfers.
PROC8b (Refueling)	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Triodob (Heidelling)	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	Ose as a fuel additive.
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 (Limited Automostics Defination)
	(Liquid: Automotive Refuelling)
	(Liquid Scooter Refuelling) (Liquid: Garden equipment - Refuelling)
	(Liquid, Garden equipment - Neruening) (Liquid, Garden equipment - Use)
	(Liquiu, Galuen equipment - Ose)

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

Sector of uses SU	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
	PROC1
	PROC2
	PROC2 (Storage)
Process category [PROC]	PROC3
Flocess category [FROO]	PROC3 (Sampling)
	PROC8a (Maintenance)
	PROC8b (bulk)
	PROC15
Chemical product category [PC]	not applicable
Article categories [AC]	not applicable
	ERC1
	ERC2
	ERC3
	ERC4
Environmental release categories [ERC]	ERC5
	ERC6a
	ERC6b
	ERC6c
	l ERC6d

2.0 Operational conditions and risk management measures
2.1 Control of worker exposure

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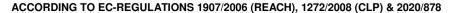


	ERC7
Specific Environmental Release Categories SPERC	ESVOC SpERC 1.1b v.1

Dreduct characteristics				
Product characteristics	Liamia mista biada matati	1. .		
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	Not defined			
Potential exposure area Frequency and duration of use	Not defined			
Exposure duration per day	Covers daily exposured	o un to 0 hou	urs (unless stated differently).	
Frequency of use (days per year)	300	s up to 6 flot	dis (unless stated differently).	
Other operational conditions affecting worker expo				
Other operational conditions affecting worker expo-	PROC3, PROC2 (Stora	ano)	Outdoor	
Area of use	· ·	age)		
0	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. Assum	ies activities	are at ambient temperature (unless stated differently).	
General measures (skin irritants)	Language for the discount of the co		an along the stant to ENOTA) if he and a cost of the cost of the stant and	
Avoid direct skin contact with product. Identify potentia	l areas for indirect skin o	contact. Wea	ar gloves (tested to EN374) if hand contact with substance	
prevent/minimise exposures and to report any skin prob		skin contan	nination immediately. Provide basic employee training to	
General measures (carcinogens)	ments that may develop.			
	aludina automatian) fa at	ha aliminati	on of releases, miniming expensive uning managers and an	
			on of releases. minimise exposure using measures such as	
			down systems and clear transfer lines prior to breaking	
			otential for exposure: restrict access to authorised persons;	
	•	-	nd coveralls to prevent skin contamination; wear respiratory	
			ately and dispose of waste safely. Ensure safe systems of	
work or equivalent arrangements are in place to mana	ige risks. Regularly inspe	ect, test and	I maintain all control measures. Consider the need for risk	
based health surveillance.				
Technical conditions of use				
PROC1, PROC2, PROC3	Handle substance within a closed system.			
111001,111002,111000			r containment or extract ventilation. (Efficiency of at least	
PROC8b (bulk)	90 %)			
DD0045	,	-fficionay of	at locat 00.9()	
PROC15	Use fume cupboard. (E	eniciency of	at least 90 %)	
Organisational measures	0	41	(F#:-:	
PROC3 (Sampling)			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.	
	(inhalation - efficiency	of at least 90	0 %)	
Risk management measures related to human healt	h			
Respiratory protection	No special measures a	re required.		
	BBCCC		Wear suitable gloves tested to EN374. (Efficiency of at	
	PROC2		least 80 %)	
Hand and/or Skin protection			Wear chemically resistant gloves (tested to EN374) in	
	PROC8a (Maintenance	a)	combination with 'basic' employee training. (Efficiency of	
	i i i o o o a (iviali ile ilaffice	-)	at least 90 %)	
Eve Protection	No appoint massures a	ro rocuiro-l	at 15ast 30 /0)	
Eye Protection	No special measures a	ne required.		
Other operational conditions affecting worker expos				
Wear suitable coveralls to prevent exposure to the skin.	Clear transfer lines prior	to de-coupl	ing. Avoid dip sampling.	
2.2 Control of environmental exposure				
Amounts used				
Fraction of EU tonnage used in region:	-	0.1		
Regional use tonnage (tons/year):		3.1E+06		
Fraction of Regional tonnage used locally: tons/year		2.0E-03		
Annual site tonnage (tons/year):				
		62,000		
Average daily use (kg/day)		210,000		
Environment factors not influenced by risk manage	ment			
Flow rate of receiving surface water (m³/d):		Not defined (default = 18,000)		
Local freshwater dilution factor:		10		

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Local marine water dilution factor:	100				
operational conditions					
Emission days (days/year):	300				
Release fraction to air from process (initial release prior to RMM):	1.0E-03				
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-05				
Release fraction to soil from process (initial release prior to RMM):	1.0E-05				
Technical onsite conditions and measures to reduce or limit discharges, a	ir emissions and releases to soil				
Treat air emission to provide a typical removal efficiency of (%):	90				
If there is no discharge to domestic sewage treatment plant, Treat onsite					
wastewater (prior to receiving water discharge) to provide the required	0				
removal efficiency of (%):					
If discharging to domestic sewage treatment plant, provide the required onsite	0				
wastewater removal efficiency of (%):	0				
Treat soil emission to provide a typical removal efficiency of (%):	0				
Common practices vary across sites thus conservative process release estimates	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, con	ntained or reclaimed.				
Conditions and measures related to municipal sewage treatment plant					
Size of municipal sewage system/treatment plant (m³/d)	2000				
Degradation effectiveness (%)	95.7				
Conditions and measures related to external treatment of waste for dispos	sal				
External treatment and disposal of waste should comply with applicable local and/or national regulations.					
Substance release quantities after risk management measures					
Maximum allowable site tonnage (MSafe) based on release following total	530,0000				
wastewater treatment removal (kg/d):	000,0000				

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

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

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

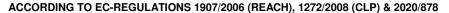
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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

	ronmental posure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Envir Ex	redicted ronmental (posure (PEC)	4.6E-03 mg/L	3.6E-03 mg/L	4.6E-05 mg/L	1,68E-4 mg/kg ww	0.15 mg/kg ww	4.6E-03 mg/kg ww

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	Risk characterisation ratio (RCR)	2.8E-04	1.2E-02	1.3E-04	2.3E-05	6.0E-03	1.9E-04	
Human expos	ure prediction:							
	Route of Exposure Exposure (µg/kg ⁻¹ day ⁻¹)					Risk characterisation r (RCR)	atio	
		oral		3.9		3.9E-02		
	i	nhalation		0.68		7.3E-04		

4.0 Evaluation guidance to downstream user					
For scaling see	are managed to at least equiform Available hazard data do not Further details on scaling and industries-libraries.html). Exposure calculated for benzelong.	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-			
Exposure assessment	Worker	ECETOC TRA			
instrument/tool/method	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.			

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

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

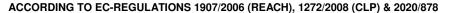
2.0 Operational conditions and risk manager	ment measures				
2.1 Control of worker exposure					
Product characteristics					
Physical form of product	Liquid with high volatility.				
Concentration of substance in product	Covers concentrations up	to 100% (≤ 1 % benzene content)			
Human factors not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

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

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

General measures (carcinogens)

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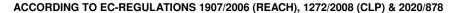
Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment.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

based health surveillance.						
Technical conditions of use						
PROC1, PROC2, PROC2 (Storage), PROC3	Handle substance with	nin a closed	system.			
PROC3 (Sampling)			system to avoid exposure. (Efficiency of at least 95 %)			
PROC8b (bulk), PROC8b (Drum/batch transfers)	Ensure material transf	ers are unde	er containment or extract ventilation. (Efficiency of at least			
PROC15	Use fume cupboard. (Efficiency of	at least 90 %)			
Organisational measures	(
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 90 %)					
Risk management measures related to human hea						
Respiratory protection	No special measures	are required				
	PROC2, PROC2 (Stor	rage)	Wear suitable gloves tested to EN374. (Efficiency of at least 80 %)			
Hand and/or Skin protection	PROC8a (Maintenanc		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 expo						
Wear suitable coveralls to prevent exposure to the skir	n. Clear transfer lines pri	or to de-cou	pling. 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):		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	ement					
Flow rate of receiving surface water (m³/d):			d (default = 18,000)			
Local freshwater dilution factor:			10			
Local marine water dilution factor:			100			
operational conditions		l				
Emission days (days/year):		300				
Release fraction to air from process (initial release price	or to RMM):	2.5E-02				
Release fraction to wastewater from process (initial rel		1.1E-03				
Release fraction to soil from process (initial release pri		1.0E-04				
Technical onsite conditions and measures to redu			ns and releases to soil			
Treat air emission to provide a typical removal efficience		0				
If there is no discharge to domestic sewage treatment						
wastewater (prior to receiving water discharge) to prov	ide the required	95.3				
removal efficiency of (%):						
If discharging to domestic sewage treatment plant, pro	vide the required	0				
onsite wastewater removal efficiency of (%):		· ·				
	Treat soil emission to provide a typical removal efficiency of (%): 0					
wastewater treatment required.		tes used. If	discharging to domestic sewage treatment plant, no onsite			
Organisational measures to prevent/limit release fi						
Do not apply industrial sludge to natural soils. Sludge s		ntained or r	eclaimed.			
Conditions and measures related to municipal sew	· .					
Size of municipal sewage system/treatment plant (m³/o	d)	2000				
Degradation effectiveness (%)		95.7				
Conditions and measures related to external treatment	nent of waste for dispo	sal				

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External treatment and disposal of waste should comply with applicable local and/or national regulations.

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Substance release quantities after risk management measures	
Maximum allowable site tonnage (MSafe) based on release following total	1.15.05
wastewater treatment removal (kg/d):	1.1E+03

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

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

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

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

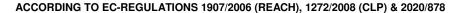
Environmental exposure	STP	freshwater	marine water	soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	2.4 mg/L	0.24 mg/L	2.4E-02 mg/L	1.67E-03 mg/kg ww	9.4E-01 mg/kg ww	9.4E-02 mg/kg ww
Risk characterisation ratio (RCR)	0.14	0.66	0.066	4.6E-03	0.91	0.091

Human exposure prediction:

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

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

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

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

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

General measures applicable to all activities

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

General measures (skin irritants)

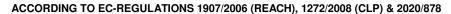
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise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

General measures (carcinogens)

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

Technical conditions of use				
PROC1, PROC2, PROC2 (Storage), PROC3, PROC16, PROC16 (Additive)	ROC1, PROC2, PROC2 (Storage), PROC3, Handle substance within a closed system			
PROC8b (bulk), PROC8b (Drum/batch transfers), PROC8b (Refuelling), PROC8b (Refuelling aircraft)	Ensure material transfers are under containment or extract ventilation. (Efficiency of at least 90 %)			
Organisational measures				
PROC8a (Maintenance)	Drain down and flush system prior to equipment break-in or maintenance. Retain drain 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	h			
Respiratory protection	No special measures are required.			
Hand and/or Skin protection	PROC2	Wear suitable gloves tested to EN374. (Efficiency of at least 80 %)		

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

|--|

3.1 Human exposure prediction

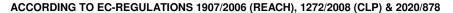
Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

	inhalation		der	Combined	
Process category	inhalation	Risk	dermal	Risk	Risk
[PROC]	exposure	characterisation	exposure	characterisation	characterisation
	(mg/m³)	ratio (RCR)	(mg/kg bw/day)	ratio (RCR)	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	0.35	0.35	0.14	0.59	0.94
(Storage)	0.33	0.33	0.14	0.59	0.94
PROC3	0.70	0.70	0.03	0.15	0.85
PROC8a	0.35	0.35	0.14	0.59	0.94
(Maintenance)	0.33	0.55	0.14	0.59	0.34
PROC8b	0.09	0.09	0.07	0.30	0.39
(bulk)	0.09	0.09	0.07	0.30	0.39
PROC8b	0.15	0.15	0.07	0.30	0.45

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

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

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

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

Human exposure prediction:

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

4.0 Evaluation guidance to downstream user					
For scaling see	Where other risk management measures/operational conditions are adopted, then users should ensure 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 industries-libraries.html). Exposure calculated for benzene and assumes that the substance contains 1 % benzene. Arithmetic so 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.			

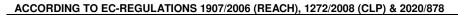
Exposure Scenario 4 – Use of Gasoline (0 – 1 % benzene content) as a fuel- Professional

1.0 Contributing Scenarios	
Sector of uses SU	SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category [PROC]	PROC1 PROC2 PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) PROC16
Chemical product category [PC]	not applicable
Article categories [AC]	not applicable
Environmental release categories [ERC]	ERC9a ERC9b

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2.0 Operational conditions and risk management measures

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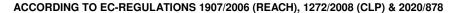




Specific Environmental Release Categories SPERC 9.12b.v1

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						
Potential exposure area	Not defined					
Frequency and duration of use		4 - O l	- /l			
Exposure duration per day	Covers daily exposures up to 300	to 8 nour	rs (uniess stated differently).			
Frequency of use (days per year) Other operational conditions affecting worker expo						
Other operational conditions affecting worker expo		PROC3 Outdoor				
Area of use	All other PROC's		Not defined (default = Indoor)			
Characteristics of the surroundings	Not defined		Not defined (default = fildoor)			
-	Not defined					
General measures applicable to all activities Assumes a good basic standard of occupational hygien	a is implemented. Assumes as	ctivities o	are at ambient temperature (unless stated differently)			
General measures (skin irritants)	e is implemented. Assumes ac	Clivilies a	are at ambient temperature (unless stated unlerently).			
	l areas for indirect skin contac	ct Waar	gloves (tested to EN374) if hand contact with substance			
			nation immediately. Provide basic employee training to			
prevent/minimise exposures and to report any skin prob						
General measures (carcinogens)						
	cluding automation) for the eli-	imination	n of releases. minimise exposure using measures such as			
			down systems and clear transfer lines prior to breaking			
			tential for exposure: restrict access to authorised persons;			
			d coveralls to prevent skin contamination; wear respiratory			
			tely and dispose of waste safely. Ensure safe systems of			
			maintain all control measures. Consider the need for risk			
based health surveillance.	ige risks. Hegularly inspect, te	est and i	maintain all control measures. Consider the need for risk			
Technical conditions of use						
PROC1, PROC2, PROC2 (Storage), PROC3,	Handle substance within a c	closed sy	ystem.			
PROC16	Dravida a good standard of	aanaral	ventilation. Natural ventilation is from dears, windows at			
PP0 00 (0)	_	-	ventilation. Natural ventilation is from doors, windows etc.			
PROC2 (Storage)		s air is si	upplied or removed by a powered fan. (Efficiency of at			
	least 30 %)					
PROC8b (bulk), PROC8b (Drum/batch transfers),		re under	containment or extract ventilation. (Efficiency of at least			
PROC8b (Refuelling)	90 %)					
Organisational measures						
	-	-	o equipment break-in or maintenance. Retain drain downs			
PROC8a (Maintenance)	0 1		or for subsequent recycle. Clear spills immediately.			
	(Efficiency of at least 83 %)					
Risk management measures related to human healt	h					
Respiratory protection	No special measures are red	equired.				
	PPOCO		Wear suitable gloves tested to EN374. (Efficiency of at			
	PROC2		least 80 %)			
Hand and/or Skin protection			Wear chemically resistant gloves (tested to EN374) in			
·	PROC8a (Maintenance)		combination with 'basic' employee training. (Efficiency of			
	Tribook (mamionanos)		at least 98 %)			
Eye Protection	No special measures are rec					
Other operational conditions affecting worker expo		quircu.				
		0.0011215-	ag Avoid dip campling			
Wear suitable coveralls to prevent exposure to the skin	. Olear transier lines prior to de	e-coupiin	ig. Avoid dip sampling.			
2.2 Control of environmental exposure						
Amounts used	Γ					
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	E-04				
		350				
Annual site tonnage (tons/year):	350	,				
	350 950					
Annual site tonnage (tons/year):	950					
Annual site tonnage (tons/year): Average daily use (kg/day):	950 ment)	(default = 18,000)			

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

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

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

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

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

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

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

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

Human exposure prediction:

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

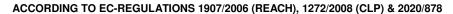
4.0 Evaluation guidance to downstream user						
For scaling see	Where other risk management measures/operational conditions are adopted, then users should ensure the are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/recindustries-libraries.html). Exposure calculated for benzene and assumes that the substance contains 1 % benzene. Arithmetic scaling 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 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	ESVOC SPERC 9.12c.v1			

2.0 Operational conditions and risk managem	ent measures		
2.1 Control of worker exposure			
Product characteristics			
Physical form of product	Liquid with h	igh volatility.	
Concentration of substance in product	Covers conc	entrations up to 100% (≤ 1 % benzene content	t)
Human factors not influenced by risk manage	ement		
Detential expenses area (Chin centeet)	PC13	Liquid: Automotive Refuelling Liquid Scooter Refuelling	210 cm ²
Potential exposure area (Skin contact)	F013	Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling	420 cm ²
Frequency and duration of use			
Functions (house) (Function	B040	Liquid: Automotive Refuelling; Liquid Scooter Refuelling	0.05
Exposure duration (hours/Event)	PC13	Liquid, Garden equipment - Use	0.03
		Liquid: Garden equipment - Refuelling	2.00
Fraguency of use (days per year)	PC13	Liquid: Automotive Refuelling; Liquid Scooter Refuelling	52 (Covers frequency up to: weekly use)
Frequency of use (days per year)	1013	Liquid, Garden equipment - Use; Liquid: Garden equipment - Refuelling	26 (Covers frequency up to: once in two weeks.)
Amounts used (g/Event) PC13		Liquid: Automotive Refuelling Liquid Scooter Refuelling	37500 3750

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			d, Garden equipment - Use;	750		
		Liquio	d: Garden equipment - Refuelling	700		
Other operational conditions affecting worker exp						
Area of use	Not defined					
	ו טיויזט ו		d: Automotive Refuelling;			
Characteristics of the surroundings			Scooter Refuelling;	Outdoor		
9			d, Garden equipment - Use			
		Liquid	d: Garden equipment - Refuelling	34 m³		
risk management measures	No amonific man		identified			
Respiratory protection Hand and/or Skin protection	No specific me					
	No specific me					
Eye Protection 2.2 Control of environmental exposure	No specific me	asures	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 management						
Flow rate of receiving surface water (m³/d):			Not defined (default = 18,000)			
Local freshwater dilution factor:	Local freshwater dilution factor:					
Local marine water dilution factor:			100			
operational conditions						
Emission days (days/year):			365			
Release fraction to air from process (initial release pri			1.0E-02			
Release fraction to wastewater from process (initial re):	1.0E-05			
Release fraction to soil from process (initial release pr			1.0E-05			
Conditions and measures related to municipal sev		nt				
Size of municipal sewage system/treatment plant (m³/d)			2000			
Degradation effectiveness (%)			95.7			
Conditions and measures related to external treat		•				
External treatment and disposal of waste should comp		cal and	or national regulations.			
Substance release quantities after risk manageme						
Maximum allowable site tonnage (MSafe) based on rewastewater treatment removal (kg/d):	elease following total	1	31000			

3. Exposure estimation and reference to its source

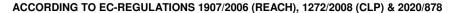
3.1 Human exposure prediction

Yearly Use (Chronic)

Chemical	inhal	ation	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

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Exposure assessment (method/calculation model)

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

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

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

Human exposure prediction:

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

4.0 Evaluation guidance to downstream user							
For scaling see	Where other risk management measures/operational conditions are adopted, then users should ensure 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/industries-libraries.html). Exposure calculated for benzene and assumes that the substance contains 1 % benzene. Arithmetic so be possible if the batch contains < 1 % benzene						
Exposure assessment	Consumer	ECETOC TRA					
instrument/tool/method	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.					