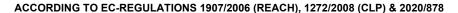
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name Naphtha (petroleum), isomerization

Product Description V4027-ISOMERATE-Naphtha (petroleum), isomerization

 Trade Name
 ISOMERATE

 Product code
 ISOMERAT, V4027

 CAS No.
 64741-70-4

 EC No.
 265-073-5

REACH Registration No. 01-2119480399-24-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), isomerization (0 – 1 %	12
	benzene content)	
2	Formulation and (re)packing of Naphtha (petroleum),	15
	isomerization (0 – 1 % benzene content)	
3	Use of Naphtha (petroleum), isomerization (0 – 1 % benzene	18
	content) as a fuel - Industrial	
4	Use of Naphtha (petroleum), isomerization (0 – 1 % benzene	21
	content) as a fuel - Professional	
5	Use of Naphtha (petroleum), isomerization (0 – 1 % benzene	24
	content) as a 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 V4027-ISOMERATE-Naphtha (petroleum), isomerization

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ISOMERATE V4027

Hazard Pictogram(s)









Signal Word(s)

Hazard Statement(s)

DANGER

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. 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), isomerization	64741-70-4	265-073-5	100

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

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

Eliminate sources of ignition. If it is suspected that fumes are still present, the

swallowed then seek immediate medical assistance.

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

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

H2S Warning:

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Inhalation IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight

> clothing such as a collar, tie, belt or waistband. Get medical advice/attention if you feel unwell.

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.

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.

4.3 Indication of any immediate medical attention and special treatment needed

Most important symptoms and effects, both acute

Notes to a physician:

and delayed

4.2

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 fire-fighters 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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Product may release Hydrogen Sulphide. Exposure controls - These controls may H2S Warning: 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 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 iet. 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

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 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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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 materials

7.3 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 national Occupational Exposure Limits or other equivalent values.

8.1.2 Biological limit value

8.1.3 PNECs and DNELs

PNEC: Not established. Naphtha (petroleum), isomerization 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), isomerization Derived No Effect Level	Oral	Inhalation	Dermal
Worker - Long Term - Systemic effects	-	1300 mg/m³	-
Worker - Long Term - Local effects	-	840 mg/m³	-
Worker - Acute - Local effects	-	1100 mg/m³	-
Consumer - Long Term - Systemic effects	-	1200 mg/m³	-
Consumer - Long Term - Local effects	-	180 mg/m³	-
Consumer - Acute - Local effects	_	640 mg/m ³	_

Not established

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 (PPE)

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.

Eye/ face protection



Skin protection

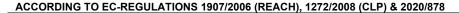


Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Recommended: Nitrile rubber.

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Body protection: Wear anti-static clothing and shoes.

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

large scale: Chemical protection suit.

Respiratory protection



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

Closed system(s): Not normally required.

Thermal hazards Not applicable.

8.2.3 **Environmental Exposure Controls** Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

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

Boiling point or initial boiling point and boiling range Flammability

Lower and upper explosion limit

Flash point

Auto-ignition temperature Decomposition temperature

Kinematic viscosity

Solubility

Partition coefficient: n-octanol/water (log value)

Vapour pressure

Density and/or relative density

Relative vapour density

Particle characteristics

Immiscible with water. Not applicable. Substance is complex UVCB.

4 - 240 kPa @ 37.8°C 0.62 - 0.88 g/cm3 @ 15 °C

Not applicable - Liquid

Flammable Limits (Lower) (%v/v) 1 Flammable Limits (Upper) (%v/v) 10

> 2

< 0 °C > 220 °C

Not established

Not established. Not established.

1 mm²/s @ 20 °C

9.2 Other information None known.

SECTION 10: STABILITY AND REACTIVITY

10 1 Reactivity Stable under normal conditions. Reacts with - Strong oxidising agents 10.2 Chemical stability Stable under normal conditions. Hazardous polymerisation will not occur.

Product may release Hydrogen Sulphide.

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

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

of ignition and flashback. Product may release Hydrogen Sulphide.

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,

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects Acute toxicity - Ingestion

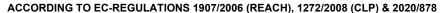
All test data taken from existing ECHA registrations for the substances mentioned. Based upon the available data, the classification criteria are not met.

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Carcinogenicity

Reproductive toxicity





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

Acute toxicity - Inhalation Based upon the available data, the classification criteria are not met. LC50 Vapour > 5600 mg/m³ Air (rat) (OECD 403)

Acute toxicity - Skin Contact Based upon the available data, the classification criteria are not met.

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

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

Serious eye damage/irritation Based upon the available data, the classification criteria are not met.

Not irritating to eyes (rabbit) (OECD 405)

Respiratory or skin sensitization 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

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 - 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))

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

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

Dermal: 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 mm²/s @ 20 °C

11.2 Information on other hazards

12.5

12.6

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

11.2.2 Other information None.

SECTION 12: ECOLOGICAL INFORMATION

Results of PBT and vPvB assessment

Endocrine disrupting properties

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)

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

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

(H411) for the environment based on acute invertebrate and alga toxicity.

assessment 2)

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

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.

12.7 Other adverse effects None known.

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



SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of this material and its container as hazardous waste. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue. Containers must not be punctured or destroyed by burning, even when empty. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company. Waste code: 13 07 01

Waste classification according to Directive 2008/98/EC

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

(Waste Framework Directive)

SECTION 14: TRANSPORT INFORMATION

		ADR/RID		IMDG/ADN
14.1	UN number	UN1268		UN1268
14.2	Proper Shipping Name	PETROLEUM DISTILLA	TES N.O.S.	PETROLEUM DISTILLATES N.O.S.
14.3	Transport hazard class(es)	3		3+(N2, CMR,F)
14.4	Packing group	I		1
14.5	Environmental hazards	MILEUGEVAARLIJK /	ENVIRONMENTALLY	HAZARDOUS / UMWELTGEFÄHRDEND /
		DANGEREUX POUR L'E	NVIRONNEMENT	
14.6	Special precautions for user	Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces.		
14.7	Maritime transport in bulk according			
	to IMO instruments		0 1	precautions which a user needs to be aware of,
		or needs to comply with,	in connection with tran	sport.
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	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

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.

References: Existing ECHA registration(s) for Naphtha (petroleum), isomerization (CAS No. 64741-70-4) and Chemical Safety Report.

Literature References:

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

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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:

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,

H411: Toxic to aquatic life with long lasting effects.

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

Disclaimers

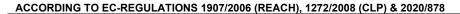
Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Vitol SA gives no warranty as to the fitness of the product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

Annex to the extended Safety Data Sheet (eSDS)

See below -

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Naphtha (petroleum), isomerization (0 -1% benzene content)

CAS No. 64741-70-4 EC No. 265-073-5

Summary of Parameters

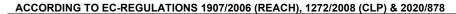
Physical Parameters				
Vapour pressure (Pa)			4 – 240 @ 37.8 °C (Value used for exposure assessment = 340)	
Partition Coefficier	nt (log K _{OW})		2.00 - 20.43	
Aqueous solubility	(mg L ⁻¹)		1.6E+03 - 5.1E-18 (Value used for exposure assessment = 2.0E+02)	
Molecular weight			Not applicable	
Biodegradability			Not defined	
Human health Parameter (DNELs)				
	Short term	Inhalation (mg/m³)	1100	
Worker		Dermal (mg/kg bw/day)	Not applicable	
vvorker		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 ⁻¹ bw/day ⁻¹)	8.8	

Environmental Parameter (PNECs)

Naphtha (petroleum), isomerization 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 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.
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 Refueling 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
	(Automotive refueling)
	(Scooter refueling)
	(Garden equipment refueling)
	(Garden equipment use)

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



Exposure Scenario 1 – Distribution of Naphtha (petroleum), isomerization (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 ERC66 ERC66 ERC66 ERC66C ERC66C			
Specific Environmental Release Categories SPERC	ESVOC SpERC 1.1b v.1			

2.0 Operational conditions and risk management measures					
2.1 Control of worker exposure					
Product characteristics	Product characteristics				
Physical form of product	Physical form of product Liquid with high volatility.				
Concentration of substance in product	Covers concentrations up to 10	00% (≤ 1 % benzene content)			
Human factors not influenced by risk management					
Potential exposure area	Not defined	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)	Frequency of use (days per year) 300				
Other operational conditions affecting work	er exposure				
A	PROC3, PROC2 (Storage)	Outdoor			
Area of use	All other PROC's	Not defined (default = Indoor)			
Characteristics of the surroundings	ngs Not defined				
Canada magazina amiliada da all'addividia					

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)

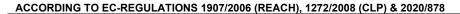
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise 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, PROC3	Handle substance within a closed system.			
PROC8b (Bulk)	Ensure material transfers are under containment or extract ventilation. (Efficiency of at			
1 1000b (Bulk)	least 90 %)			
PROC15	Use fume cupboard. (Efficiency of at least 90 %)			
Organisational measures				
PROC3 (Sampling)	Sample via a closed loop or other system to avoid exposure. (Efficiency of at least 95 %)			
	Drain down and flush system prior to equipment break-in or maintenance. Retain drain			
PROC8a (Maintenance)	downs in sealed storage pending disposal or for subsequent recycle. Clear spills			
	immediately. (Inhalation - efficiency of at least 90 %)			

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Risk management measures related to human he	ealth		
Respiratory protection	No special measures	are require	d.
	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 require	d.
Other operational conditions affecting worker ex	posure		
Wear suitable coveralls to prevent exposure to the sl	kin. Clear transfer lines p	orior to de-co	oupling. 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):		5.4E+05	
Fraction of Regional tonnage used locally: tons/y	/ear	2.0E-03	
Annual site tonnage (tons/year):		110,00	
Average daily use (kg/day)		110,000	
Environment factors not influenced by risk mana	gement	· · ·	
Flow rate of receiving surface water (m³/d):	<u>-</u>	Not define	ed (default = 18,000)
Local freshwater dilution factor:		10	
Local marine water dilution factor:		100	
Operational conditions			
Emission days (days/year):			
Release fraction to air from process (initial release p	rior 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):			
Technical onsite conditions and measures to red	luce or limit discharges	s, air emiss	ions and releases to soil
Treat air emission to provide a typical removal efficiency of (%): 90			
If there is no discharge to domestic sewage treatmer	nt plant, Treat onsite		
wastewater (prior to receiving water discharge) to pro-	ovide the required	0	
removal efficiency of (%):			
If discharging to domestic sewage treatment plant, p	rovide the required	0	
onsite wastewater removal efficiency of (%):		U	
Treat soil emission to provide a typical removal effici		0	
Common practices vary across sites thus conserva onsite wastewater treatment required.	tive process release es	timates use	d. If discharging to domestic sewage treatment plant, no
Organisational measures to prevent/limit release			
Do not apply industrial sludge to natural soils. Sludge		contained o	r reclaimed.
Conditions and measures related to municipal se		1	
Size of municipal sewage system/treatment plant (m³/d)		2000	
Degradation effectiveness (%) 97.0			
Conditions and measures related to external trea			
External treatment and disposal of waste should com		and/or nation	onal regulations.
Substance release quantities after risk managem		1	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):			

0 F	and actions as to the comme
3. Exposure estimation	and reference to its source

3.1 Human exposure prediction

	Inha	lation	Dei	rmal	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

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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), isomerization is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the PEC of each group of components in the substance. These are used to estimate the environmental risk for the substance As the model assumes fractionation before entering the environment, the PEC is not of the substance as manufactured but is a some of the constituents expected to be present in the environmental compartment.

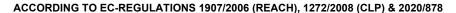
Environmental exposure	STP	freshwater	marine water	Soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	1.7E-03 mg/L	5.6E-04 mg/L	1.7E-05 mg/L	5.9E-06 mg/kg ww	1.0E-03 mg/kg ww	1.0E-04 mg/kg ww
Risk characterisation ratio (RCR)	2.4E-04	3.7E-03	1.1e-04	3.6E-06	1.3E-03	1.3E-04

Human exposure prediction:

Route of Exposure	Exposure (µg/kg ⁻¹ day ⁻¹)	Risk characterisation ratio (RCR)
Oral	0.034	3.4E-04
Inhalation	0.13	1.4E-04

4.0 Evaluation guidance to d	lownstream user	
For scaling see	risks are managed to at lea Available hazard data do n Further details on scaling a for-industries-libraries.html	ot support the need for a DNEL to be established for other health effects. nd control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-). nzene and assumes that the substance contains 1 % benzene. Arithmetic scaling h 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 2 – Formulation and (re)packing of Naphtha (petroleum), isomerization (0 – 1 % benzene content)

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

2.0 Operational conditions and risk management r	neasures			
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 managemen	t			
Potential exposure area	Not defined			
Frequency and duration of use				
Exposure duration per day	Covers daily exposures up to 8 ho	ours (unless stated differently).		
Frequency of use (days per year)	300			
Other operational conditions affecting worker exp	osure			
A === = f	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 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.

Consider the need for risk based health surveillance.					
Technical conditions of use					
OC1, PROC2, PROC2 (Storage), PROC3 Handle substance within a closed system.					
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 und least 97 %)	,			
PROC15	Use fume cupboard. (Efficiency of at least 90 %)				
Organisational measures					
	Drain down and flush system prior to equipment break-in or maintenance. Retain drain				
PROC8a (Maintenance)	downs in sealed storage pending disposal or for subsequent recycle. Clear spills				
	immediately. (Efficiency of at leas	t 90 %)			
Risk management measures related to human hea	lth				
Respiratory protection	No special measures are required	1.			
Hand and/or Skin protection	PROC2, PROC2 (Storage)	Wear suitable gloves tested to EN374. (Efficiency of at least 80 %)			

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nission days (days/year): elease fraction to air from process (initial release prior to RMI elease fraction to wastewater from process (initial release prior elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to provide a typical removal efficiency of (%); elease fraction to soil from process (initial release prior to RMI elease fraction to provide a typical removal efficiency of (%); elease fraction to air from process (initial release prior to RMI elease fraction to swill release prior to RMI elease fraction to swill release prior to RMI elea	or to RMM): IM):	2.5E-02 2.0E-03 1.0E-04	
elease fraction to air from process (initial release prior to RMI elease fraction to wastewater from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to RMI elease prior to RMI elease fraction to growide a typical removal efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%):	or to RMM): IM):	2.5E-02 2.0E-03 1.0E-04	
elease fraction to air from process (initial release prior to RMI elease fraction to wastewater from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to soil from process (initial release prior to RMI elease fraction to RMI elease prior to RMI elease fraction to growide a typical removal efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%):	or to RMM): IM):	2.0E-03 1.0E-04	
elease fraction to wastewater from process (initial release pricelease fraction to soil from process (initial release prior to RN echnical onsite conditions and measures to reduce or line eat air emission to provide a typical removal efficiency of (%) there is no discharge to domestic sewage treatment plant, Tractewater (prior to receiving water discharge) to provide the removal efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)	or to RMM): IM):	1.0E-04	
echnical onsite conditions and measures to reduce or line eat air emission to provide a typical removal efficiency of (%) there is no discharge to domestic sewage treatment plant, Trastewater (prior to receiving water discharge) to provide the moval efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)			
eat air emission to provide a typical removal efficiency of (%) there is no discharge to domestic sewage treatment plant, Trastewater (prior to receiving water discharge) to provide the moval efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)	nit discharges,	, air emissi	
there is no discharge to domestic sewage treatment plant, Trastewater (prior to receiving water discharge) to provide the removal efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)			ons and releases to soil
astewater (prior to receiving water discharge) to provide the r moval efficiency of (%): discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)	:	0	
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discharging to domestic sewage treatment plant, provide the site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%)	equired	96.9	
site wastewater removal efficiency of (%): eat soil emission to provide a typical removal efficiency of (%			
eat soil emission to provide a typical removal efficiency of (%	required	0	
		U	
ommon practices vary across sites thus conservative proce):	0	
site wastewater treatment required.	ss release estir	mates used	. If discharging to domestic sewage treatment plant, no
rganisational measures to prevent/limit release from site			
o not apply industrial sludge to natural soils. Sludge should be	e incinerated, c	ontained or	reclaimed.
onditions and measures related to municipal sewage trea	tment plant		
ze of municipal sewage system/treatment plant (m³/d)		2000	
egradation effectiveness (%)		97.0	
onditions and measures related to external treatment of	vaste for disp	osal	
ternal treatment and disposal of waste should comply with a	pplicable local a	and/or natio	nal regulations.
ıbstance release quantities after risk management meas	ures		
aximum allowable site tonnage (MSafe) based on release fol astewater treatment removal (kg/d):		4.2E+04	

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

	Inha	lation	Dei	rmal	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

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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), isomerization is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the PEC of each group of components in the substance. These are used to estimate the environmental risk for the substance As the model assumes fractionation before entering the environment, the PEC is not of the substance as manufactured but is a some of the constituents expected to be present in the environmental compartment.

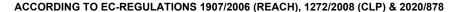
Environmental exposure	STP	freshwater	marine water	Soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	1.2 mg/L	0.12 mg/L	0.012 mg/L	6.7E-04 mg/kg ww	0.78 mg/kg ww	0.077 mg/kg ww
Risk characterisation ratio (RCR)	0.18	0.82	0.082	2.1E-03	0.97	0.097

Human exposure prediction:

Route of Exposure	Exposure (µg/kg ⁻¹ day ⁻¹)	Risk characterisation ratio (RCR)
Oral	7.1	0.071
Inhalation	7.0	0.075

4.0 Evaluation guidance to downstream user				
For scaling see	risks are managed to at lea Available hazard data do no Further details on scaling a for-industries-libraries.html Exposure calculated for be	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/reachfor-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.		

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Exposure Scenario 3 – Use of Naphtha (petroleum), isomerization (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) PROC16 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 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 1009	% (≤ 1 % benzene content)			
Human factors not influenced by risk managemen	t				
Potential exposure area	Not defined				
Frequency and duration of use					
Exposure duration per day	Covers daily exposures up to 8 ho	ours (unless stated differently).			
Frequency of use (days per year)	300				
Other operational conditions affecting worker exp	osure				
Area of use	PROC3	Outdoor			
Area of use	All other PROC's	Not defined (default = Indoor)			
Characteristics of the surroundings	Not defined				

General measures applicable to all activities

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

General measures (skin irritants)

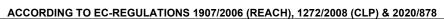
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise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

Consider the need for new based nearth early emantes.					
Technical conditions of use					
PROC1, PROC2, PROC2 (Storage), PROC3, PROC16, PROC16 (Additive)	Handle substance within a closed system.				
PROC8b (Bulk), PROC8b (Drum/batch transfers), PROC8b (refuelling), PROC8b (refuelling aircraft)	Ensure material transfers are under containment or extract ventilation. (Efficiency of at least 90 %)				
Organisational measures					
PROC8a (Maintenance)	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. (Efficiency of at least 86 %)				
Risk management measures related to human hea	alth				
Respiratory protection	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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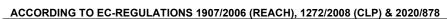
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	PROC8a (Maintenance)		Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 90 %)	
Eye Protection	No special measures	are required	d.	
Other operational conditions affecting worker expo	osure			
Wear suitable coveralls to prevent exposure to the skir	n. Clear transfer lines p	rior to de-co	oupling. 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):		1.6E+03		
Fraction of Regional tonnage used locally: (tons/year)		1		
Annual site tonnage (tons/year):		1.6E+03		
Average daily use (kg/day):		1.6E+04		
Environment factors not influenced by risk manage	ement			
Flow rate of receiving surface water (m³/d):		Not define	ed (default = 18,000)	
Local freshwater dilution factor:		10	, ,	
Local marine water dilution factor:		100		
Operational conditions				
Emission days (days/year):		100		
Release fraction to air from process (initial release price	or to RMM):	5.00E-02		
Release fraction to wastewater from process (initial rel	ease prior to RMM):	1.0E-05		
Release fraction to soil from process (initial release pri		0		
Technical onsite conditions and measures to redu		, air emissi	ions and releases to soil	
Treat air emission to provide a typical removal efficience	. ,	95.0		
If there is no discharge to domestic sewage treatment				
wastewater (prior to receiving water discharge) to prov	ride the required	0		
removal efficiency of (%):				
If discharging to domestic sewage treatment plant, pro	vide the required	0		
onsite wastewater removal efficiency of (%):		O		
Treat soil emission to provide a typical removal efficier	ncy of (%):	0		
Common practices vary across sites thus conservative onsite wastewater treatment required.	ve process release esti	mates used	d. If discharging to domestic sewage treatment plant, no	
Organisational measures to prevent/limit release from				
Do not apply industrial sludge to natural soils. Sludge s		contained or	reclaimed.	
Conditions and measures related to municipal sew	<u> </u>	1		
Size of municipal sewage system/treatment plant (m³/d)		2000		
Degradation effectiveness (%)		97.0		
Conditions and measures related to external treatment	nent of waste for disp	osal		
External treatment and disposal of waste should comp	ly with applicable local	and/or natio	onal regulations.	
Substance release quantities after risk management				
Maximum allowable site tonnage (MSafe) based on rewastewater treatment removal (kg/d):	lease following total	2.2E+06		

3.1 Human exposure prediction

	Inha	lation	Dei	Combined	
Process category [PROC]	inhalation exposure	Risk characterisation	dermal exposure	Risk characterisation	Risk characterisation
DD004	(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 (Storage)	0.35	0.35	0.14	0.59	0.94
PROC3	0.70	0.70	0.03	0.15	0.85
PROC8a (Maintenance)	0.35	0.35	0.14	0.59	0.94
PROC8b (Bulk)	0.09	0.09	0.07	0.30	0.39
PROC8b	0.15	0.15	0.07	0.30	0.45

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

3.2 Environmental exposure prediction	
Exposure assessment (method/calculation model)	The Hydrocarbon Block Method has been used to calculate
	environmental exposure with the Petrorisk model

Naphtha (petroleum), isomerization is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the PEC of each group of components in the substance. These are used to estimate the environmental risk for the substance As the model assumes fractionation before entering the environment, the PEC is not of the substance as manufactured but is a some of the constituents expected to be present in the environmental compartment.

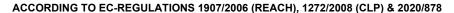
Environmental exposure	STP	freshwater	marine water	Soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	2.5E-03 mg/L	6.40E-04 mg/L	2.5E-05 mg/L	8.4E-06 mg/kg ww	1.5E-03 mg/kg ww	1.5E-04 mg/kg ww
Risk characterisation ratio (RCR)	3.5E-04	4.3E-03	1.6E-04	2.6E-05	1.9E-03	1.9e-04

Human exposure prediction:

	Route of Exposure	Exposure (μg/kg ⁻¹ day ⁻¹)	Risk characterisation ratio (RCR)
Γ	Oral	0.036	3.6E-04
Γ	Inhalation	0.89	9.6E-04

4.0 Evaluation guidance to downstream user					
For scaling see	risks are managed to at lea Available hazard data do no Further details on scaling an for-industries-libraries.html)	ot support the need for a DNEL to be established for other health effects. Indicontrol technologies are provided in SpERC factsheet (http://cefic.org/en/reach- Indicontrol technologies are provided in SpERC factsheet (http://cefic.org/en/			
Exposure assessment	Worker	ECETOC TRA			
instrument/tool/method	Environment	Environment The Hydrocarbon Block Method has been used to calculate environment exposure with the Petrorisk model.			

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Exposure Scenario 4 – Use of Naphtha (petroleum), isomerization (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)		
	PROC1		
	PROC2		
	PROC2 (Storage) PROC3		
Process sategory [DBOC]	111222		
Process category [PROC]	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		
Environmental release categories [ERC]	ERC9b		
Specific Environmental Release Categories SPERC ESVOC SpERC 9.12b.v1			

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

General measures applicable to all activities

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

Consider the field for flow based fledith sal velilaries	•				
Technical conditions of use					
PROC1, PROC2, PROC2 (Storage), PROC3, PROC16	Handle substance within a closed system.				
PROC2 (Storage)	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. (Efficiency of at least 30 %)				
PROC8b (Bulk), PROC8b (Drum/batch transfers), PROC8b (refuelling)	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 83 %)				
Risk management measures related to human he	ealth				
Respiratory protection No special measures are required.					

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	PROC2		Wear suitable gloves tested to EN374. (Efficiency of at least 80 %)		
Hand and/or Skin protection	PROC8a (Maintenan	,	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Efficiency of at least 98 %)		
Eye Protection	No special measures	are required	d.		
Other operational conditions affecting worker ex	posure				
Wear suitable coveralls to prevent exposure to the s	kin. Clear transfer lines p	orior to de-co	oupling. 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):		4.5E+02			
Fraction of Regional tonnage used locally: (tons/yea	r)	5.0E-04			
Annual site tonnage (tons/year):		0.23			
Average daily use (kg/day):		0.62			
Environment factors not influenced by risk mana	agement				
Flow rate of receiving surface water (m³/d):	<u> </u>	Not define	ed (default = 18,000)		
Local freshwater dilution factor:		10	(45,441)		
Local marine water dilution factor:		100			
Operational conditions		100			
Emission days (days/year):		365			
Release fraction to air from process (initial release p	rior to RMM):	1.0E-02			
Release fraction to wastewater from process (initial		1.0E-05			
Release fraction to soil from process (initial release		1.0E-05			
Technical onsite conditions and measures to red	duce or limit discharges	s, air emiss	ions and releases to soil		
Treat air emission to provide a typical removal efficie	ency of (%):	Not applicable			
If there is no discharge to domestic sewage treatme	nt plant, Treat onsite				
wastewater (prior to receiving water discharge) to pr	ovide the required	0			
removal efficiency of (%):					
If discharging to domestic sewage treatment plant, p	rovide the required				
onsite wastewater removal efficiency of (%):		0			
Treat soil emission to provide a typical removal effic	iency of (%):	0			
		timates used	d. If discharging to domestic sewage treatment plant, no		
onsite wastewater treatment required.	'		3 3 3 7		
Organisational measures to prevent/limit release					
Do not apply industrial sludge to natural soils. Sludg		contained or	r reclaimed.		
Conditions and measures related to municipal se					
Size of municipal sewage system/treatment plant (m³/d)			2000		
Degradation effectiveness (%)		97.0			
Conditions and measures related to external trea	ntment of waste for disp	oosal			
External treatment and disposal of waste should cor		and/or natio	onal regulations.		
Substance release quantities after risk managem					
Maximum allowable site tonnage (MSafe) based on wastewater treatment removal (kg/d):	release following total	1100			

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

	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	

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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 Enviro	nmental exposure pre	diction								
Exposure a	assessment (method/cal	culation model)	The Hydrocar	bon Block	Method	has	been	used	to	calculate
			environmental	exposure v	vith the Pe	etroris	sk mod	el.		

Naphtha (petroleum), isomerization is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the PEC of each group of components in the substance. These are used to estimate the environmental risk for the substance As the model assumes fractionation before entering the environment, the PEC is not of the substance as manufactured but is a some of the constituents expected to be present in the environmental compartment.

Environmental exposure	STP	freshwater	marine water	Soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	9.4E-08 mg/L	3.9E-04 mg/L	9.2E-07 mg/L	5.7E-06 mg/kg ww	7.6E-04 mg/kg ww	1.6E-06 mg/kg ww
Risk characterisation ratio (RCR)	1.3E-08	2.6E-03	6.1E-06	2.9E-06	9.5E-04	2.1E-06

Human exposure prediction:

Route of Exposure	Exposure (μg/kg ⁻¹ day ⁻¹)	Risk characterisation ratio (RCR)
Oral	0.031	3.1E-04
Inhalation	0.1	1.1E-04

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

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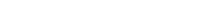
Exposure Scenario 5 – Use of Naphtha (petroleum), isomerization (0 – 1 % benzene content) as a fuel - Consumer

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 (Automotive refueling) PC13 (Scooter refueling) PC13 (Garden equipment refueling) PC13 (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 manage	ment measures				
2.1 Control of worker exposure					
Product characteristics					
Physical form of product		Liquid with high volatility.			
Concentration of substance in product		centrations up to 100% (≤ 1 % benzene o	content)		
Human factors not influenced by risk manag	gement				
		Automotive refueling; Scooter refueling	210 cm ²		
Potential exposure area (Skin Contact)	PC13	Garden equipment use;			
		Garden equipment refueling	420 cm ²		
Frequency and duration of use	l .	out don oquipment returning	l l		
		Automotive refueling;	0.05		
Exposure duration (hours/Event)	PC13	Scooter refueling	0.05		
Exposure duration (nours/Event)	PCIS	Garden equipment use	0.03		
		Garden equipment refueling	2.00		
		Automotive refueling;	52		
		Scooter refueling	(Covers frequency up to:		
Frequency of use (days per year)	PC13	-	weekly use)		
		Garden equipment use;	(Covers frequency up to: once		
		Garden equipment refueling	in two weeks.)		
Amounta used (all uset)		Automotive refueling	37500		
	PC13	Scooter refueling	3750		
Amounts used (g/Event)	PCIS	Garden equipment use;	750		
		Garden equipment refueling	750		
Other operational conditions affecting work					
Area of use	Not defined				
		Automotive refueling;			
Characteristics of the surroundings	PC13	Scooter refueling;	Outdoor		
Ç		Garden equipment use	043		
		Garden equipment refueling	34 m³		
Risk Management Measures	No amazifia	management identified			
Respiratory protection Hand and/or Skin protection		measures identified. measures identified.			
Eye Protection		measures identified.			
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):			100,00		
Fraction of Regional tonnage used locally: (ton:	s/vear)		5.0E-04		
Annual site tonnage (tons/year):	, , , , ,		5.1		
Average daily use (kg/day):		14			
Environment factors not influenced by risk	management	17			
Flow rate of receiving surface water (m³/d):	anagement	Not defined (default = 19.00)	2)		
Local freshwater dilution factor:		,	Not defined (default = 18,000)		
			10		
Local marine water dilution factor:	100				
Operational conditions Emission days (days/year):		365			
Linission days (days/year).		303			

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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			
Conditions and measures related to municipal sewage treatment plant				
Size of municipal sewage system/treatment plant (m³/d)	2000			
Degradation effectiveness (%)	97.0			
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):	2400			

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

ECETOC TRA (benzene content)

Yearly Use (Chronic)

	Inhalation		Dei	Combined	
Chemical product inhalation exposure (mg/m³)		Risk characterisation ratio (RCR)	dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PC13 (Automotive refueling)	0.002	0.69	0.00	0.01	0.70
PC13 (Scooter refueling)	0.001	0.46	0.00	0.01	0.47
PC13 (Garden equipment use)	0.003	0.87	0.00	0.00	0.87
PC13 (Garden equipment refueling)	0.001	0.18	0.00	0.02	0.20

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), isomerization is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the PEC of each group of components in the substance. These are used to estimate the environmental risk for the substance As the model assumes fractionation before entering the environment, the PEC is not of the substance as manufactured but is a some of the constituents expected to be present in the environmental compartment.

Environmental exposure	STP	freshwater	marine water	Soil	freshwater sediment	marine sediment
Predicted Environmental Exposure (PEC)	2.1E-06 mg/L	3.9E-04 mg/L	9.4E-07 mg/L	5.9E-06 mg/kg ww	7.6E-04 mg/kg ww	1.8E-06 mg/kg ww
Risk characterisation ratio (RCR)	3.0E-07	2.6E-03	6.3E-06	3.6E-06	9.5E-04	2.2E-06

Human exposure prediction:

Route of Exposure	Exposure (μg/kg ⁻¹ day ⁻¹)	Risk characterisation ratio (RCR)
Oral	0.031	3.1E-04
Inhalation	0.44	1.1E-04

4.0 Evaluation guidance to downstream user					
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that				
	risks are managed to at least equivalent 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				

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Exposure assessment	Consumer	ECETOC TRA
instrument/tool/method	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.