SAFETY DATA SHEET
According to EC No 1907/2006 as amended as at the date of this SDS

Waste Plastic Pyrolysis Oil

Version	Revision Date:	SDS Number:	Date of last issue: 12.11.2024
2.0	03.01.2025	800010056803	Print Date 10.01.2025

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	Waste Plastic Pyrolysis Oil
Product code	:	X3601, X4601, X4602, X4603, X4608
Unique Formula Identifier (UFI)	:	M03P-4RNS-050S-ESRH

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

Use of the Substance/Mixture	:	Raw material for use in the chemical industry.
Uses advised against	:	This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	:	**Shell Chemicals Europe B.V.** PO Box 2334 3000 CH Rotterdam Netherlands
Telephone	:	+31 (0)10 441 5137 / +31 (0)10 441 5191
Telefax	:	+31 (0)20 716 8316 / +31 (0)20 713 9230
Contact for Safety Data Sheet	:	sccmsds@shell.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per week)
Poisons Centre: 070 245 245

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Skin irritation, Category 2	H315: Causes skin irritation.

Eye irritation, Category 2	H319: Causes serious eye irritation.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Specific target organ toxicity - single exposure, Category 3, Narcotic effects , Inhalation	H336: May cause drowsiness or dizziness.
Germ cell mutagenicity, Category 1	H340: May cause genetic defects.
Carcinogenicity, Category 1	H350: May cause cancer.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

PHYSICAL HAZARDS:
H225 Highly flammable liquid and vapour.
HEALTH HAZARDS:
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
ENVIRONMENTAL HAZARDS:
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open

flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P273 Avoid release to the environment.

Response:

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

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Fuel Oil, Pyrolysis	69013-21-4 273-782-6	Flam. Liq. 2; H225 Acute Tox. 4; H302 Asp. Tox. 1; H304 Skin Irrit. 2; H315 Carc. 1A; H350 STOT RE 1; H372 (Auditory system) Eye Irrit. 2; H319 Aquatic Chronic 2; H411	0 - 100
Distillates (petroleum), cracked stripped steam-cracked petroleum distillates, C10-12 fraction	68477-40-7 270-729-9 649-410-00-7 01-2119486792-24	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Carc. 2; H351	0 - 100

		Asp. Tox. 1; H304 Aquatic Chronic 2; H411	
Fuels, diesel	68334-30-5 269-822-7 649-224-00-6 01-2119484664-27	Asp. Tox. 1; H304 Acute Tox. 4; H332 Skin Irrit. 2; H315 Carc. 2; H351 STOT RE 2; H373 Aquatic Chronic 2; H411 Aquatic Acute 2; H401	0 - 51
naphtha	8030-30-6 232-443-2 649-262-00-3	Flam. Liq. 1; H224 Skin Irrit. 2; H315 Carc. 1B; H350 Muta. 1B; H340 Repr. 2; H361 Asp. Tox. 1; H304 STOT SE 3; H336 Aquatic Chronic 2; H411	0 - 32
residues (petroleum),atm.tower	64741-45-3 265-045-2 649-008-00-1 01-2119485975-17	Carc. 1B; H350 Acute Tox. 4; H332 Repr. 2; H361 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 EUH066 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	0 - 24
Kerosine (petroleum)	8008-20-6 232-366-4 649-404-00-4 01-2119485517-27	Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336 Aquatic Chronic 2; H411	0 - 18

For explanation of abbreviations see section 16.

Further information

Contains:

Chemical name	Identification number	Classification	Concentration (% w/w)
Benzene	71-43-2, 200-753-7	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315	0 - 5

		Eye Irrit.2; H319 Muta.1B; H340 Carc.1A; H350 STOT RE1; H372 Aquatic Chronic3; H412	
Cumene	98-82-8, 202-704-5	Flam. Liq.3; H226 Asp. Tox.1; H304 STOT SE3; H335 Carc.1B; H350 Aquatic Chronic2; H411	0 - 1
Cyclohexane	110-82-7, 203-806-2	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315 STOT SE3; H336 Aquatic Chronic1; H410 Aquatic Acute1; H400	0 - 2
Ethylbenzene	100-41-4, 202-849-4	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315 Eye Irrit.2; H319 Acute Tox.4; H332 STOT SE3; H335 STOT RE2; H373 Aquatic Chronic3; H412	0 - 10
Naphthalene	91-20-3, 202-049-5	Acute Tox.4; H302 Carc.2; H351 Aquatic Acute1; H400 Aquatic Chronic1; H410	0 - 25
Toluene	108-88-3, 203-625-9	Flam. Liq.2; H225 Asp. Tox.1; H304 Skin Irrit.2; H315 STOT SE3; H336 Repr.2; H361d STOT RE2; H373 Aquatic Chronic3; H412	0 - 14
Trimethylbenzene (all isomers)	25551-13-7, 247-099-9	Flam. Liq.3; H226 STOT SE3; H335 Aquatic Chronic2;	0 - 1

		H411	
Indene	95-13-6, 202-393-6	Flam. Liq.3; H226 Skin Irrit.2; H315 Eye Irrit.2; H319 Aquatic Chronic2; H411	0 - 10
Xylene, mixed isomers	1330-20-7, 215-535-7	Flam. Liq.3; H226 Asp. Tox.1; H304 Acute Tox.4; H312 Skin Irrit.2; H315 Eye Irrit.2; H319 Acute Tox.4; H332 STOT SE3; H335 STOT RE2; H373 Aquatic Chronic3; H412	0 - 2
Dicyclopentadi-ene	77-73-6, 201-052-9	Flam. Liq.2; H225 Acute Tox.4; H302 Asp. Tox.1; H304 Acute Tox.2; H330 Skin Irrit.2; H315 Eye Irrit.2; H319 STOT SE3; H335 Repr.2; H361 STOT RE2; H373 Aquatic Acute1; H400 Aquatic Chronic2; H411	0 - 10
n-Hexane	110-54-3, 203-777-6	Flam. Liq.2; H225 Skin Irrit.2; H315 Asp. Tox.1; H304 STOT RE2; H373 STOT SE3; H336 Repr.2; H361f Aquatic Chronic2; H411	0 - 16
Pentene	109-67-1, 203-694-5	Flam. Liq.1; H224 Asp. Tox.1; H304 STOT SE3; H336	0 - 3
undecane	1120-21-4, 214-300-6	Asp. Tox.1; H304 EUH066	0 - 2
Isoprene	78-79-5, 201-143-3	Flam. Liq.1; H224 Muta.2; H341 Carc.1B; H350	0 - 1

		Aquatic Chronic2; H411	
Biphenyl	92-52-4, 202-163-5	Eye Irrit.2; H319 Skin Irrit.2; H315 STOT SE3; H335 Aquatic Acute1; H400 Aquatic Chronic1; H410	0 - 1
styrene	100-42-5, 202-851-5	Flam. Liq.3; H226 Asp. Tox.1; H304 Skin Irrit.2; H315 Eye Irrit.2; H319 Acute Tox.4; H332 STOT SE3; H335 Repr.2; H361d STOT RE1; H372 Aquatic Chronic3; H412	>= 0 - <= 25
pentane	109-66-0, 203-692-4	Flam. Liq.1; H224 Asp. Tox.1; H304 STOT SE3; H336 Aquatic Chronic2; H411 EUH066	>= 0 - < 5

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Vapourisation of H2S that has been trapped in clothing can be dangerous to rescuers. Maintain respiratory protection to avoid contamination from the victim to rescuer. Mechanical ventilation should be used to resuscitate if at all possible.

In case of skin contact : Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling,

pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment.

If swallowed : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters.
If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
The onset of respiratory symptoms may be delayed for several hours after exposure.
Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination.
Continued inhalation may result in unconsciousness and death.
Damage to blood-forming organs may be evidenced by: a) fatigue and anaemia (RBC), b) decreased resistance to infection, and/or excessive bruising and bleeding (platelet effect).
Peripheral nerve damage may be evidenced by impairment of motor function (incoordination, unsteady walk, or muscle weakness in the extremities, and/or loss of sensation in the arms and legs).

Auditory system effects may include temporary hearing loss and/or ringing in the ears.
Skin or eye contact with uncured photopolymer, vapours or condensate may result in skin or eye irritation, rash or allergic skin rashes.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.
IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!

Call a doctor or poison control center for guidance.
Hydrogen sulphide (H2S) - CNS asphyxiant. May cause rhinitis, bronchitis and occasionally pulmonary oedema after severe exposure. CONSIDER: Oxygen therapy. Consult a Poison Control Center for guidance.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : 6.1.1 For non emergency personnel:
Avoid contact with skin and eyes.
6.1.2 For emergency responders:
Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions : Use appropriate containment to prevent uncontrolled release.
Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Local authorities should be advised if significant spillages

cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Slippery when spilt. Avoid accidents, clean up immediately.
Prevent from spreading by making a barrier with sand, earth or other containment material.
Reclaim liquid directly or in an absorbent.
Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Advice on safe handling : Avoid prolonged or repeated contact with skin.
Avoid inhaling vapour and/or mists.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling.

7.2 Conditions for safe storage, including any incompatibilities

Further information on storage stability : Keep container tightly closed and in a cool, well-ventilated place.
Use properly labeled and closable containers.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable material: PVC.

Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Benzene	71-43-2	TLV 8 hr	0,5 ppm 1,65 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air., This substance is part of the scope of the Royal degree of 2th December 1993 on the protection of workers against the risk of exposure to carcinogenic and mutagenic agents at labour.			
Benzene		TWA	0,25 ppm 0,8 mg/m3	Shell Internal Standard (SIS) for 8-12 hour TWA.
Benzene		STEL	2,5 ppm 8 mg/m3	Shell Internal Standard (SIS) for 15 min (STEL)
Cumene	98-82-8	TLV 8 hr	10 ppm 50 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Cumene		TLV 15 min	50 ppm 250 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Cumene		TWA	10 ppm 50 mg/m3	2019/1831/EU
	Further information: A skin notation assigned to the occupational exposure limit value indicates the possibility of significant uptake through the skin., Indicative			
Cumene		STEL	50 ppm 250 mg/m3	2019/1831/EU
	Further information: A skin notation assigned to the occupational exposure limit value indicates the possibility of significant uptake through the skin., Indicative			
Cyclohexane	110-82-7	TLV 8 hr	100 ppm 350 mg/m3	BE OEL
Cyclohexane		TWA	200 ppm 700 mg/m3	2006/15/EC
	Further information: Indicative			
Kerosine (petrole-	8008-20-6	TLV 8 hr	200 mg/m3	BE OEL

um)			(total hydrocarbon vapor)	
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Ethylbenzene	100-41-4	TLV 8 hr	20 ppm 87 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Ethylbenzene		TLV 15 min	125 ppm 551 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Fuels, diesel	68334-30-5	TLV 8 hr (vapour and aerosols)	100 mg/m3 (total hydrocarbons)	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Naphthalene	91-20-3	TLV 8 hr	10 ppm 53 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Naphthalene		TLV 15 min	15 ppm 80 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Naphthalene		TWA	10 ppm 50 mg/m3	91/322/EEC
	Further information: Indicative			
Toluene	108-88-3	TLV 8 hr	20 ppm 77 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Toluene		TLV 15 min	100 ppm 384 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Toluene		TWA	50 ppm 192 mg/m3	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
Toluene		STEL	100 ppm 384 mg/m3	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
Trimethylbenzene	25551-13-7	TLV 8 hr	20 ppm	BE OEL

(all isomers)			100 mg/m3	
Indene	95-13-6	TLV 8 hr	5 ppm 24 mg/m3	BE OEL
Xylene, mixed isomers	1330-20-7	TLV 8 hr	50 ppm 221 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Xylene, mixed isomers		TLV 15 min	100 ppm 442 mg/m3	BE OEL
	Further information: Absorption of the agent through the skin, the mucous membranes or the eyes makes up an important part of total exposure. This absorption can be the result of direct contact as well as the presence in air.			
Dicyclopentadiene	77-73-6	TLV 8 hr	5 ppm 27 mg/m3	BE OEL
n-Hexane	110-54-3	TLV 8 hr	20 ppm 72 mg/m3	BE OEL
n-Hexane		TWA	20 ppm 72 mg/m3	2006/15/EC
	Further information: Indicative			
Isoprene	78-79-5	TWA	3 ppm 8,4 mg/m3	Shell Internal Standard (SIS) for 8 hour TWA.
Biphenyl	92-52-4	TLV 8 hr	0,2 ppm 1,3 mg/m3	BE OEL

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Benzene	Workers	Inhalation	Long-term systemic effects	0,8 mg/m3/ 8h
Kerosine (petroleum)	Consumers	Oral		19 mg/kg 24h
Remarks:	long term, systemic effects			
Fuels, diesel	Workers	Dermal		2,9 mg/kg 8h
Remarks:	long term, systemic effects			
Fuels, diesel	Workers	Inhalation		68 mg/m3/8h (aerosol)
Remarks:	long term, systemic effects			
Fuels, diesel	Consumers	Dermal		1,3 mg/kg 24h
Remarks:	long term, systemic effects			
Fuels, diesel	Consumers	Inhalation		20 mg/m3/24h (aerosol)
Remarks:	long term, systemic effects			
Ethylbenzene	Workers	Inhalation	Acute local effects	293 mg/m3
Ethylbenzene	Workers	Inhalation	Long-term systemic effects	77 mg/m3
Ethylbenzene	Workers	Dermal	Long-term systemic	180 mg/kg

			effects	bw/day
Ethylbenzene	Consumers	Inhalation	Long-term systemic effects	15 mg/m3
Ethylbenzene	Consumers	Oral	Long-term systemic effects	1,6 mg/kg bw/day
residues (petroleum),atm.tower	Workers	Dermal	Long-term systemic effects	0,065 mg/kg 8h
residues (petroleum),atm.tower	Workers	Inhalation	Long-term systemic effects	0,12 mg/m3/8h (aerosol)
Naphthalene	Consumers	Oral	Long-term systemic effects	4,23 mg/kg
Toluene	Workers	Inhalation	Acute systemic effects	384 mg/m3
Toluene	Workers	Inhalation	Long-term systemic effects	192 mg/m3
Toluene	Workers	Dermal	Long-term systemic effects	180 mg/kg bw/day
Toluene	Consumers	Inhalation	Acute systemic effects	226 mg/m3
Toluene	Consumers	Inhalation	Long-term systemic effects	56,5 mg/m3
Toluene	Consumers	Dermal	Long-term systemic effects	226 mg/kg bw/day
Toluene	Consumers	Oral	Long-term systemic effects	8,13 mg/kg bw/day
Dicyclopentadiene	Workers	Inhalation	Acute local effects	160,23 mg/m3
Dicyclopentadiene	Workers	Dermal	Long-term systemic effects	0,3 mg/kg bw/day
Dicyclopentadiene	Workers	Inhalation	Long-term systemic effects	1,058 mg/m3
Dicyclopentadiene	Man via environment	Inhalation	Long-term systemic effects	0,26 mg/m3
Dicyclopentadiene	Man via environment	Oral	Long-term systemic effects	0,15 mg/kg bw/day
Isoprene	Workers	Inhalation	Long-term systemic effects	8,4 mg/m3
Isoprene	Workers	Dermal	Long-term systemic effects	23,7 mg/kg bw/day
Isoprene	Consumers	Oral	Long-term systemic effects	0,213 mg/kg bw/day

8.2 Exposure controls

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Eye protection	:	Wear goggles for use against liquids and gas. If a local risk assessment deems it so then chemical splash goggles may not be required and safety glasses may provide adequate eye protection. Approved to EU Standard EN166.
Hand protection		
Remarks	:	Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.
Skin and body protection	:	Wear chemical resistant gloves/gauntlets and boots. Where risk of splashing, also wear an apron. Protective clothing approved to EU Standard EN14605.
Respiratory protection	:	If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing appa-

ratus.
All respiratory protection equipment and use must be in accordance with local regulations.

Select a filter suitable for combined particulate/organic gases and vapours [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

Thermal hazards : Not applicable

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : Various colours

Odour : pungent

Odour Threshold : Data not available

Melting point/freezing point : Data not available

Initial boiling point and boiling range : > 35 °C

Flammability

Flammability (solid, gas) : Not applicable

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / upper flammability limit : Data not available

Lower explosion limit / Lower flammability limit : 0,14 %(V)

Flash point : < 23 °C

Auto-ignition temperature : Data not available

Decomposition temperature

Decomposition temperature : Data not available

pH : Not applicable

Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic	:	Data not available
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	Data not available
Relative density	:	0,7538 - 0,8106 (15 °C)
Density	:	0,7538 - 0,8106 g/cm3 (15 °C)
Relative vapour density	:	Data not available
Particle characteristics		
Particle size	:	Data not available

9.2 Other information

Explosive properties	:	Classification Code: Not classified
Oxidizing properties	:	Not applicable
Evaporation rate	:	Data not available
Conductivity	:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid
Surface tension	:	Data not available
Molecular weight	:	Data not available

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

Stable.

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Hazardous decomposition products are not expected to form during normal storage.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat): > 300 - 2.000 mg/kg
Remarks: Harmful if swallowed.

Acute inhalation toxicity : (Rat): Exposure time: 4 h
Remarks: Harmful if inhaled.
LC50 > 10,0 - <= 20,0 mg/l

Acute dermal toxicity : LD50 Dermal (Rabbit): > 2.000 mg/kg
Remarks: Low toxicity

Components:

residues (petroleum),atm.tower:

Acute oral toxicity : Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 (Rat, male and female): 4,1 - 4,5 mg/l
Exposure time: 4 h
Method: Test(s) equivalent or similar to OECD Test Guideline 403
Remarks: Harmful if inhaled.

Acute dermal toxicity : Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Remarks : Causes skin irritation.

Components:

residues (petroleum),atm.tower:

Remarks : Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Product:

Remarks : Causes eye irritation.

Components:

residues (petroleum),atm.tower:

Remarks : Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Components:

residues (petroleum),atm.tower:

Remarks : Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Contains Benzene, CAS # 71-43-2.
May cause heritable genetic damage

Germ cell mutagenicity- Assessment : Category 1B

Components:

residues (petroleum),atm.tower:

Genotoxicity in vitro : Remarks: Based on available data, the classification criteria are not met.

Genotoxicity in vivo : Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Remarks : Contains Benzene, CAS # 71-43-2.
Known human carcinogen.
May cause leukaemia (AML - acute myelogenous leukaemia).
May cause MDS (Myelodysplastic Syndrome).

Remarks : Contains Cumene, CAS# 98-82-8.
An increased tumour incidence has been observed in experimental animals; the significance of this finding to man is unknown.

Carcinogenicity - Assessment : Category 1A

Components:

residues (petroleum),atm.tower:

Species : Mouse
Application Route : Dermal
Method : Test(s) equivalent or similar to OECD Test Guideline 451
Remarks : May cause cancer.

Remarks : Contains Cumene, CAS# 98-82-8.
An increased tumour incidence has been observed in experimental animals; the significance of this finding to man is unknown.

Material	GHS/CLP Carcinogenicity Classification
Benzene	Carcinogenicity Category 1A
naphtha	Carcinogenicity Category 1B
Cumene	Carcinogenicity Category 1B
Cyclohexane	No carcinogenicity classification.
Kerosine (petroleum)	No carcinogenicity classification.
Ethylbenzene	No carcinogenicity classification.
Fuels, diesel	Carcinogenicity Category 2
Naphthalene	Carcinogenicity Category 2
residues (petroleum),atm.tower	Carcinogenicity Category 1B
Toluene	No carcinogenicity classification.
Fuel Oil, Pyrolysis	Carcinogenicity Category 1A
Trimethylbenzene (all isomers)	No carcinogenicity classification.

Xylene, mixed isomers	No carcinogenicity classification.
Indene	No carcinogenicity classification.
n-Hexane	No carcinogenicity classification.
Dicyclopentadiene	No carcinogenicity classification.
Pentene	No carcinogenicity classification.
undecane	No carcinogenicity classification.
Isoprene	Carcinogenicity Category 1B
Biphenyl	No carcinogenicity classification.
Distillates (petroleum), cracked stripped steam-cracked petroleum distillates, C10-12 fraction	Carcinogenicity Category 2

Material	**Other Carcinogenicity Classification**
Benzene	IARC: Group 1: Carcinogenic to humans
naphtha	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Cumene	IARC: Group 2B: Possibly carcinogenic to humans
Ethylbenzene	IARC: Group 2B: Possibly carcinogenic to humans
Naphthalene	IARC: Group 2B: Possibly carcinogenic to humans
Toluene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Xylene, mixed isomers	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Isoprene	IARC: Group 2B: Possibly carcinogenic to humans

Reproductive toxicity

Product:

Effects on fertility :

Remarks: Contains n-Hexane, CAS # 110-54-3., Suspected of damaging fertility or the unborn child., May impair fertility at doses which produce other toxic effects., Affects reproductive system in animals; considered to be secondary to other toxic effects., Causes foetotoxicity in animals at doses which are maternally toxic.

Remarks: Contains Toluene, CAS # 108-88-3., Causes foetotoxicity in animals at doses which are maternally toxic., Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties.

Reproductive toxicity - Assessment	:	This product does not meet the criteria for classification in categories 1A/1B.

Components:

residues (petroleum),atm.tower:

Effects on fertility	:	Species: Rat Method: Test(s) equivalent or similar to OECD Test Guideline 414 Remarks: Based on data from similar materials, Suspected of damaging fertility or the unborn child.

STOT - single exposure

Product:

Remarks	:	High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death. Inhalation of vapours or mists may cause irritation to the respiratory system.

Components:

residues (petroleum),atm.tower:

Remarks	:	Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Remarks	:	Causes damage to organs through prolonged or repeated exposure.
Target Organs	:	Blood, Blood-forming organs, Immune system
Remarks	:	Contains Benzene, CAS # 71-43-2. Blood: may cause haemolysis of red blood cells and/or anaemia. Blood-forming organs: repeated exposure affects the bone marrow. Immune System: animal studies on this material or its components have demonstrated immunotoxicity.
Target Organs	:	Central nervous system, Auditory system, Respiratory system, Visual system
Remarks	:	Contains Toluene, CAS # 108-88-3. Central nervous system: repeated exposure affects the nervous system. Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent

abuse and noise interaction in the work environment may cause hearing loss.
Respiratory system: repeated exposure affects the respiratory system. Effects were seen at high doses only.
Visual system: may cause decreased color perception.

Target Organs : Peripheral nervous system
Remarks : Contains n-Hexane, CAS # 110-54-3.
Peripheral nervous system: repeated exposure causes peripheral neuropathy in animals.

Components:

residues (petroleum),atm.tower:

Exposure routes : Skin contact
Remarks : May cause damage to organs or organ systems through prolonged or repeated exposure.

Repeated dose toxicity

Components:

residues (petroleum),atm.tower:

Species : Rat
Application Route : Skin contact
Exposure time : 90 d
Method : Test(s) equivalent or similar to OECD Test Guideline 411
Remarks : Based on data from similar materials

Aspiration toxicity

Product:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : Exposure to very high concentrations of similar materials has

been associated with irregular heart rhythms and cardiac arrest.

Remarks : Myelodysplastic syndrome (MDS) was observed in individuals exposed to very high levels (50 ppm to 300 ppm range) of benzene over a long period of time in the workplace. The relevance of these results to lower levels of exposure is not known.

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

Toxicity to daphnia and other aquatic invertebrates : Remarks: LC/EC/IC50 >1 - <=10 mg/l
Toxic

Toxicity to algae/aquatic plants : Remarks: Toxic
LL/EL/IL50 > 1 <= 10 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: NOEC/NOEL > 1.0 - <= 10 mg/l

Toxicity to microorganisms :
Remarks: Data not available

Components:

residues (petroleum),atm.tower:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 79 mg/l
Exposure time: 96 h
Method: Test(s) equivalent or similar to OECD Guideline 203
Remarks: Very toxic to fish.

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 0,22 mg/l
Exposure time: 48 h
Method: Test(s) equivalent or similar to OECD Guideline 202

Toxicity to algae/aquatic plants : EL50 (Raphidocelis subcapitata (freshwater green alga)): 0,32 mg/l
Exposure time: 72 h

Method: Test(s) equivalent or similar to OECD Test Guideline 201

NOEL (Raphidocelis subcapitata (freshwater green alga)): 0,05 mg/l
Exposure time: 72 h
Method: Test(s) equivalent or similar to OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: Data not available

M-Factor (Chronic aquatic toxicity) : 1

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Major constituents are inherently biodegradable, but contains components that may persist in the environment.

Components:

residues (petroleum),atm.tower:

Biodegradability : Remarks: Data not available

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

Components:

residues (petroleum),atm.tower:

Bioaccumulation : Remarks: Data not available

12.4 Mobility in soil

Product:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : Films formed on water may affect oxygen transfer and damage organisms.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local legislation
Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : 3295

ADR : 3295

RID : 3295

IMDG : 3295

IATA : 3295

14.2 UN proper shipping name

ADN : HYDROCARBONS, LIQUID, N.O.S. (NAPHTHA)

ADR : HYDROCARBONS, LIQUID, N.O.S.

RID : HYDROCARBONS, LIQUID, N.O.S.

IMDG : HYDROCARBONS, LIQUID, N.O.S. (NAPHTHA)

IATA : HYDROCARBONS, LIQUID, N.O.S.

14.3 Transport hazard class(es)

ADN : 3

ADR : 3

RID : 3

IMDG : 3

IATA : 3

14.4 Packing group

ADN

Packing group	:	II
Classification Code	:	F1
Labels	:	3 (N2, CMR, F)
CDNI Inland Water Waste Agreement	:	NST 8199 Other chemical basic substances, and mixtures, unspecified

ADR

Packing group	:	II
Classification Code	:	F1
Hazard Identification Number	:	33
Labels	:	3

RID

Packing group	:	II
Classification Code	:	F1
Hazard Identification Number	:	33
Labels	:	3

IMDG

Packing group	:	II

Labels : 3

IATA
Packing group : II
Labels : 3

14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
naphtha (Number on list 29, 28)
Benzene (Number on list 72, 5, 29, 28)
Cumene (Number on list 28)
Cyclohexane (Number on list 57)
residues (petroleum),atm.tower (Number on list 28)
Toluene (Number on list 48)
Isoprene (Number on list 28)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P5a-c FLAMMABLE LIQUIDS

E2 ENVIRONMENTAL HAZARDS

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Product is subject to the cooperation agreement (SWA3) on the control of major-accident hazards involving dangerous substances, based on Seveso III directive (2012/18/EU).

The components of this product are reported in the following inventories:

AIIC	:	Listed
TSCA	:	Listed
TCSI	:	Listed
DSL	:	Listed
KECI	:	Listed
IECSC	:	Listed
NZIoC	:	Listed

15.2 Chemical safety assessment

A Chemical Safety Assessment was not performed for this substance, as this substance was not required to be registered under REACH.

SECTION 16: Other information

Full text of H-Statements

EUH066	:	Repeated exposure may cause skin dryness or cracking.
H224	:	Extremely flammable liquid and vapour.
H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H315	:	Causes skin irritation.
H319	:	Causes serious eye irritation.
H330	:	Fatal if inhaled.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H340	:	May cause genetic defects.
H341	:	Suspected of causing genetic defects.
H350	:	May cause cancer.
H351	:	Suspected of causing cancer.
H361	:	Suspected of damaging fertility or the unborn child.
H361d	:	Suspected of damaging the unborn child.
H361f	:	Suspected of damaging fertility.

H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H401	:	Toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Carc.	:	Carcinogenicity
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Muta.	:	Germ cell mutagenicity
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
2019/1831/EU	:	Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit values
91/322/EEC	:	Europe. Commission Directive 91/322/EEC on establishing indicative limit values
BE OEL	:	Belgium. Occupational exposure limit values
2006/15/EC / TWA	:	Limit Value - eight hours
2006/15/EC / STEL	:	Short term exposure limit
2019/1831/EU / TWA	:	Limit Value - eight hours
2019/1831/EU / STEL	:	Short term exposure limit
91/322/EEC / TWA	:	Limit Value - eight hours
BE OEL / TLV 8 hr	:	Long term exposure limit
BE OEL / TLV 15 min	:	Short term exposure limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL

- Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Other information	:	This product is intended for use in closed systems only. A vertical bar (|) in the left margin indicates an amendment from the previous version. The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.
Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

BE / EN