

# Material Safety Data Sheet

# Rix Residual Fuel Oil



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## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name:** Residual Fuel Oil / Fuel Oil / Blended Fuel Oil  
**MARPOL Annex I Category:** Fuel and Residual Oils, including Ships' Bunkers  
**REACH Registration No:** 01-2119474894-22-0009  
**Intended use:** Refinery Stream  
**Uses Advised Against:** All others  
**Company:** Rix Petroleum Limited  
Witham House  
45 Spyvee Street  
Hull  
HU8 7JR  
Telephone No: (Hull) 01482 224422

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CASRN	EINECS	REACH Reg No	Concentration <sup>1</sup>	CLP Classification <sup>2</sup>	DSD Classification <sup>3</sup>
Fuel Oil, Residual	68476-33-5	270-675-6	01-2119474894-22	100	H350	Carc.Cat.2;R45
Hydrogen Sulphide	7783-06-4	231-977-3	Not Applicable	Variable (<1)	H220 H330 H400	F+;R12 T+;R26 N; R50

<sup>1</sup>All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

<sup>2</sup>Regulation EC 1272/2008.

<sup>3</sup>Superseded Directives 67/548/EEC and 1999/45/EC.

**Total Sulphur:** < 0.5 wt%

## 3. HAZARDS IDENTIFICATION

### 3.1 Classification of the substance or mixture

#### CLP Classification (EC No 1272/2008):

EUH066 – Skin effects

H332 – Acute toxicity, Inhalation – Category 4

H350 – Carcinogenicity – Category 1B

H361D – Reproductive toxicity – Category 2

H373 – Specific target organ toxicity (repeated exposure) – Category 2

H410 – Hazardous to the aquatic environment, chronic toxicity – Category 1

#### Superseded DSD Classification (67/548/EEC and 1999/45/EC):

Xn;R20, Carc. Cat. 1;R45, R48, Repr, Cat 3; R63, R66, N;R50/53



### 3. HAZARDS IDENTIFICATION continued ...

#### 3.2 Label Elements:



#### DANGER

**EUH066:** Repeated exposure may cause skin dryness or cracking.

**H332:** Harmful if inhaled.

**H350:** May cause cancer.

**H361:** Suspected of damaging fertility or the unborn child.

**H373:** May cause damage to organs through prolonged or repeated exposure.

**H410:** Very toxic to aquatic life with long lasting effects.

P201: Obtain special instructions before use.

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P273: Avoid release to the environment.

P281: Use personal protective equipment as required.

P308+P313: IF exposed or concerned: Seek medical advice/attention.

P501: Dispose of contents/container to approved disposal facility.

#### 3.3 Other Hazards:

Combustible liquid.

Contact with hot product will cause thermal burns.

May contain or release poisonous hydrogen sulphide gas.

Does not meet the criteria for persistent, bio-accumulative and toxic (PBT) or very persistent, very bio-accumulative (vPvB) substances.

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures:

**Eye Contact:** For contact with hot material, gently open eyelids and flush affected eye(s) with cold (not icy) water. Seek immediate medical attention. For cold material, wash with plenty of water with eyelids open. If redness or pain develops, seek medical attention.

**Skin Contact:** Remove contaminated shoes and clothing and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. For contact with molten material, remove non-sticking garments carefully and cool the burned area under cold running water for at least five minutes. Do not put ice on the burn or attempt to remove portions of clothing glued to burned skin. If blistering occurs, apply a sterile dressing and seek immediate medical attention.



## 4. FIRST AID MEASURES continued ...

**Inhalation (Breathing):** If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion (Swallowing):** First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

### 4.2 Most important symptoms and effects:

**Acute:** Minor respiratory irritation at high vapour concentrations.

**Delayed:** Dry skin and possible irritation with repeated or prolonged exposure.

### 4.3 Indication of immediate medical attention and special treatment needed:

**Notes to Physician:** At high concentrations, hydrogen sulphide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulphide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 ml of a 3% NaNO<sub>2</sub> solution (0.5 gm NaNO<sub>2</sub> in 15 ml water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anaemia and methemoglobin levels, arterial blood gases and electrolytes should be monitored closely.

**Other comments:** Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulphide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8.). Remove casualty to fresh air as quickly as possible. Immediately, begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

## 5. FIRE-FIGHTING MEASURES

**5.1 Extinguishing media:** Dry chemical, carbon dioxide, foam or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

### 5.2 Special hazards arising from the substance or mixture:

**Unusual fire & explosion hazards:** Combustible. This material can be ignited by heat, sparks, flames or other sources of ignition (eg static electricity, pilot lights or mechanical/electrical equipment). May create vapour/air explosion hazard if heated. This product will float and can be reignited on surface water. Vapours are heavier than air and can accumulate in low areas. If container is not properly cooled it can rupture in the heat of a fire. Hazardous combustion/decomposition products, including hydrogen sulphide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

**Hazardous combustion products:** Combustion may yield smoke, carbon monoxide and other products of incomplete combustion. Hydrogen sulphide and oxides of nitrogen and sulphur may also be formed.

**5.3 Special protective actions for fire-fighters:** Long-duration fires involving crude or residual fuel oil stored in tanks may result in boilover. The contents of the tank may be expelled beyond the containment dykes or ditches. All personnel should be kept back a safe distance when a boilover is anticipated (reference NFPA 11 or API 2021).



## 5. FIRE-FIGHTING MEASURES continued ...

For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorised personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimising or dispersing vapours and to protect personnel. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

**See Section 9. for Flammable Properties including Flash Point and Flammable (Explosive) Limits**

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:** Combustible. The use of explosion-proof electrical equipment is recommended. Keep all sources of ignition away from spill/release. May contain or release poisonous hydrogen sulphide gas. If the presence of dangerous amounts of H<sub>2</sub>S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Stay upwind and away from spill/release. Avoid direct contact with material. For larger spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8.) See Sections 3 and 7 for additional information on hazards and precautionary measures.

**6.2 Environmental precautions:** Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorised drainage systems and natural waterways. Use water sparingly to minimise environmental contamination and reduce disposal requirements. If spill occurs on water, notify appropriate authorities and advise shipping of any hazard.

**6.3 Methods and material for containment and cleaning up:** Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dyke far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite and place in suitable container for disposal. If spilled on water, remove with appropriate methods (eg skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however, local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

## 7. HANDLING & STORAGE

**7.1 Precautions for safe handling:** Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Non-sparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. May contain or release dangerous levels of hydrogen sulphide. Do not breathe vapours or mists. Use only outdoors or in well-ventilated areas. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment.

Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes for specific bonding/grounding requirements). Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes.



7. HANDLING & STORAGE continued ...

Keep contaminated clothing away from sources of ignition such as sparks or open flames. This material may be heated to high temperatures during use. Use caution when handling heated material to avoid causing thermal burns. Vapours or fumes may cause watering or irritation of the eyes.

**7.2 Conditions for safe storage, including any incompatibles:** This material may contain or release poisonous hydrogen sulphide gas. In a tank, barge or other closed container, the vapour space above this material may accumulate hazardous concentrations of hydrogen sulphide. Check atmosphere for oxygen content, H<sub>2</sub>S and flammability prior to entry. Keep container(s) tightly closed and properly labelled. Use and store this material in cool, dry, well-ventilated areas away from heat, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame". Keep away from any incompatible material (see Section 10.) Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurise, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum re-conditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to appropriate guidance pertaining to cleaning, repairing, welding or other contemplated operations. Outdoor or detached storage is preferred. Indoor storage should meet Country or Committee standards and appropriate fire codes.

**7.3 Specific end use(s):** Refer to supplemental exposure scenarios if attached.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Occupational Exposure Limits:

Component:	US-ACGIH:	UK-EH40:	Other:
a) Fuel Oil, Residual	TWA: 0.2 mg/m <sup>3</sup> as Coal Tar Pitch Volatiles as Benzene Solubles TWA: 5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> STEL as Oil Mist, if Generated	None	TWA: 100 mg/m <sup>3</sup> – 8 hr (ConocoPhillips Guidelines)  Biological Monitoring Guidance Value (BMGV); Polycyclic Aromatic Hydrocarbons (PAH's) 4 µmol 1-hydroxypyrene/mol creatinine in urine, taken post shift
b) Hydrogen Sulphide	STEL: 5 ppm TWA: 1 ppm	STEL: 10 ppm STEL: 14 mg/m <sup>3</sup>	TWA: 5 ppm 8hr TWA: 2.5 ppm 12 hr STEL: 15 ppm (ConocoPhillips Guidelines)

(STEL = Short Term Exposure Limit (15 minutes);  
TWA = Time Weighted Average (8 hours); None = No Occupational Exposure Limit.)

Biological Limit Values:

Component:	US-ACGIH:	EU 98/24/EC:	UK-EH40:
Fuel Oil, Residual	None	None	None
Hydrogen Sulphide	None	None	None

(None = No Biological Limit Value)  
**Relevant DNEL and PNEC:** Pending



8. EXPOSURE CONTROLS / PERSONAL PROTECTION continued ...

8.2 Exposure controls:

**Engineering controls:** If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

**Eye/Face Protection:** The use of eye protection that meets or exceeds EN 166 is recommended to protect against potential eye contact, irritation or injury. Depending on conditions of use, close fitting eye protection and a face shield may be necessary.

**Skin/Hand Protection:** The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Suggested protective materials: Nitrile Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

**Respiratory Protection:** A respiratory protection program that follows recommendations for the selection, use, care and maintenance of respiratory protective devices in EN 529:2005 should be followed whenever workplace conditions warrant a respirator's use. Where there is potential for airborne exposure to hydrogen sulphide (H<sub>2</sub>S) above exposure limits, an approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used.

Air purifying respirators with B+E filter cartridge(s) may be used if H<sub>2</sub>S concentrations are known and a risk assessment conducted in accordance with EN529:2005 indicates these respirators are suitable.

Under conditions where hydrogen sulphide (H<sub>2</sub>S) is NOT detected and a risk from organic vapours / acid gases is present, an approved air purifying respirator equipped with Type AE P2, organic gases and vapours / sulphur dioxide and other acid gases and vapours / P2 – Medium efficiency particle filters (as specified by the manufacturer) may be used. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health.

**Environmental Exposure Controls:** Refer to Sections 6, 7, 12 and 13.

**Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety or engineering professionals.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Data represents typical values and is not intended to state precise specifications. N/A = Not Applicable; N/D = Not Determined

<b>Appearance:</b>	Black
<b>Physical Form:</b>	Liquid
<b>Odour:</b>	Petroleum
<b>Odour Threshold:</b>	N/D
<b>pH:</b>	N/A
<b>Melting/Freezing Point:</b>	N/D
<b>Initial Boiling Point/Range:</b>	>175°C
<b>Flash Point:</b>	>65°C (ASTM D93)
<b>Evaporation Rate (nBuAc=1):</b>	N/D
<b>Flammability (solid, gas):</b>	Combustible
<b>Upper Explosive Limits (vol % in air):</b>	7.0
<b>Lower Explosive Limits (vol % in air):</b>	0.5
<b>Vapour Pressure:</b>	N/D



9. PHYSICAL & CHEMICAL PROPERTIES continued ...

Relative Vapour Density (air=1):	>1
Relative Density (water=1):	0.97-1.00 @ 15°C
Solubility (ies):	Solubility in water: <0.1%
Partition Coefficient (n-octanol/water) (Kow):	N/D
Auto-ignition Temperature:	>230°C
Decomposition Temperature:	N/D
Viscosity:	<7 cSt @ 40°C
Explosive Properties:	N/A
Oxidising Properties:	N/A

9.2 Other Information:

Pour Point:	N/D
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10. STABILITY & REACTIVITY

10.1 Reactivity:	Not chemically reactive.
10.2 Chemical stability:	Stable under normal ambient and anticipated conditions of use.
10.3 Possibility of hazardous reactions:	Hazardous reactions not anticipated.
10.4 Conditions to avoid:	Avoid all possible sources of ignition.
10.5 Incompatible materials:	Avoid contact with strong oxidising agents and strong reducing agents.
10.5 Hazardous decomposition products:	Not anticipated under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects of Substance/Mixture:

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled	May contain or release poisonous hydrogen sulphide gas - see Other Comments	4 mg/L (mist)
Skin Absorption	Unlikely to be harmful		>2 g/kg
Ingestion (Swallowing)	Unlikely to be harmful		>5 g/kg
<b>Aspiration Hazard:</b>	Not an aspiration hazard.		
<b>Skin Corrosion/Irritation:</b>	Causes mild skin irritation. Repeated exposure may cause skin dryness or cracking. Contact with the heated material may cause thermal burns.		
<b>Serious Eye Damage/Irritation:</b>	Causes mild eye irritation. Contact with the heated material may cause thermal burns. Vapours or fumes may cause watering of the eyes.		
<b>Signs and Symptoms:</b>	While significant vapour concentrations are not likely, exposure can cause minor respiratory irritation, headache, dizziness and nausea. Ingestion can cause irritation of the digestive tract, nausea and vomiting.		
<b>Skin Sensitisation:</b>	Not expected to be a skin sensitiser.		
<b>Respiratory Sensitisation:</b>	No information available.		
<b>Specific Target Organ Toxicity (Single Exposure):</b>	Not expected to cause organ effects from single exposure.		



11. TOXICOLOGICAL INFORMATION continued ...

**Specific Target Organ Toxicity (Repeated Exposure):**

May cause damage to organs through prolonged or repeated exposure. Application of heavy fuel oil components to mouse and rat skin, five times a week for 10 – 13 weeks or by gavage at 1000 mg/kg/day for 10 weeks, resulted in treatment-related effects in the liver (necrosis), bone marrow (erythroid hypoplasia and anaemia), and thymus (atrophy). Limited evidence of toxicity was seen in the lymph nodes (reactive hyperplasia), and kidney (tubular degeneration).

**Carcinogenicity:**

May cause cancer. Repeated application of heavy fuel oil components containing high polycyclic aromatic hydrocarbon content has been shown to cause an increased incidence of skin tumours in mice. Residual fuel oils have been identified as a carcinogen by IARC.

**Germ Cell Mutagenicity:**

Inadequate information available.

**Reproductive Toxicity:**

Suspected of damaging the unborn child. Repeated dermal application of various high polycyclic aromatic hydrocarbon content fuel oils to pregnant rats demonstrated maternal toxicity, decreased foetal body weights and decreased foetal survival. Some foetal abnormalities and decreased sperm count were also observed in some of the studies.

**Other comments:**

This material may contain or liberate hydrogen sulphide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odour may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure and death.

This material may contain varying concentrations of polycyclic aromatic hydrocarbons (PAHs) which would have been known to produce a phototoxic reaction when contaminated skin is exposed to sunlight. The effect is similar in appearance to an exaggerated sunburn and is temporary in duration if exposure is discontinued. Continued exposure to sunlight can result in more serious skin problems including pigmentation (discolouration), skin eruptions (pimples) and possible skin cancers.

12. ECOLOGICAL INFORMATION

**12.1 Toxicity:**

Acute aquatic toxicity studies on samples of heavy fuel oil components show acute toxicity values less than 1 mg/L. These tests were carried out on water accommodated fractions. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. Heavy fuel oils components should be regarded as very toxic to aquatic organisms with long-lasting effects. Classification: H410; Chronic Cat 1.

**12.2 Persistence and degradability:**

The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by micro-organisms.

**Persistence per IOPC Fund definition:** Persistent

**12.3 Bioaccumulative Potential:**

Log Kow values measured for the hydrocarbon components of this material are between 2.7 and 6 and therefore would be regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.



12. ECOLOGICAL INFORMATION continued ...

12.4 Mobility in Soil and Environmental Fate:

Releases to water will result in films of hydrocarbons floating and spreading on the surface, although some components may be heavier than water. Dissolution in water will be limited, but losses through sediment adsorption will be significant. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapours react readily with hydroxyl radicals which have lives of less than one day.

12.5 Results of PBT and vPvB Assessment:

Not a PBT or vPvB substance.

12.6 Other Adverse Effects: None anticipated.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

**European Waste Code:** 13 07 01 fuel oil and diesel.

This material, if discarded as produced, would be considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies. This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/producers are responsible for assessing the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code.

Disposal must be in accordance with Directive 2006/12/EC and other applicable national or regional provisions and based upon material characteristics at time of disposal. For incineration of waste, follow Directive 2000/76/EC. For landfill of waste, follow Directive 1999/31/EC. Product is suitable for burning in an enclosed controlled burner for fuel value if >5000 BTU, or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Follow Directive 2000/76/EC.

**Empty Containers:** Container contents should be completely used and containers emptied prior to discard. Empty drums should be properly sealed and promptly returned to a drum re-conditioner. All containers should be disposed of in an environmentally safe manner and in accordance with applicable regulations.

14. TRANSPORT INFORMATION

14.1	<b>UN Number:</b>	UN3082
14.2	<b>UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fuel Oil)
14.3	<b>Transport hazard class(es):</b>	9
14.4	<b>Packing group:</b>	III
14.5	<b>Environmental hazards:</b>	Marine pollutant
14.6	<b>Special precautions for user:</b>	<i>If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex 1..</i>
14.7	<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:</b>	Not Applicable.



## 15. REGULATORY INFORMATION

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

EC 1272/2008 - Classification, labelling and packaging of substances and mixtures.  
EN 166:2002 - Eye protection.  
EN 529:2005 - Respiratory protective devices.  
BS EN 374-1:2003 Protective gloves against chemicals and micro-organisms.  
Workplace Exposure Limits, EH40/2005 - Control of Substances Hazardous to Health.  
Directive 91/689/EEC on hazardous waste (European Waste Codes).  
Directive 2000/76/EC on incineration of waste.  
Directive 1999/31/EC on landfill of waste.

**Export Rating:** NLR (No Licence Required).

### 15.2 Chemical Safety Assessment

A chemical safety assessment has been carried out for the substance/mixture.

## 16. OTHER INFORMATION

### List of relevant hazard statements:

H220: Extremely flammable gas.  
EUH066: Repeated exposure may cause skin dryness or cracking.  
H330: Fatal if inhaled.  
H332: Harmful if inhaled.  
H350: May cause cancer.  
H361: Suspected of damaging fertility or the unborn child.  
H373: May cause damage to organs through prolonged or repeated exposure.  
H400: Very toxic to aquatic life.  
H410: Very toxic to aquatic life with long lasting effects.  
R12: Extremely flammable.  
R20: Harmful by inhalation.  
R26: Very toxic by inhalation.  
R45: May cause cancer.  
R48: Danger of serious damage to health by prolonged exposure.  
R63: Possible risk of harm to the unborn child.  
R66: Repeated exposure may cause skin dryness or cracking.  
R50: Very toxic to aquatic organisms.  
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Guide to Abbreviations:

ACGIH: American Conference of Governmental Industrial Hygienists.  
ADR: Agreement on Dangerous Goods by Road.  
BMGV: Biological Monitoring Guidance Value.  
CASRN: Chemical Abstracts Service Registry Number.  
CEILING: Ceiling Limit (15 minutes).  
EINECS: European Inventory of Existing Commercial Chemical Substances.  
EPA: [US] Environmental Protection Agency.  
TRGS: [Germany] Technical Rules for Dangerous Substances.  
IARC: International Agency for Research on Cancer.

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### 16. OTHER INFORMATION continued ...

ICAO/IATA:	International Civil Aviation Organisation / International Air Transport Association.
IMDG:	International Maritime Dangerous Goods.
Ireland-HSA:	Ireland's National Health & Safety Authority.
LEL:	Lower Explosive Limit.
N/A:	Not Applicable.
N/D:	Not Determined.
NTP:	[US] National Toxicological Program.
PBT:	Persistent, Bio-accumulative and Toxic.
RID:	Regulations concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure Limit (15 minutes).
TLV:	Threshold Limit Value.
TWA:	Time Weighted Average (8 hours).
UEL:	Upper Explosive Limit.
UK-EH40:	United Kingdom EH40/2005 Workplace Exposure Limits.
vPvB:	very Persistent, very Bio-accumulative.

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.