



SAFETY DATA SHEET – KEROSENE

Issued: 11/03/2016
Ref: WFS / WFS/ KEROSENE/ 02
Version: 02

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

1.1 PRODUCT IDENTIFIER

Chemical Identification:	Distillates (petroleum), hydrotreated light
Other names:	Kerosene
CAS Number:	64742-47-8.
EC Number:	265-149-8.
Index Number:	649-404-00-4.
REACH Registration Number:	Not applicable.

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Product Type and main use:	Fuel for use in domestic and commercial heating and lighting, as well as aviation turbine engines.
Uses advised against:	This product is not to be used as a solvent or cleaning agent, for lighting or brightening fires, or as a skin cleanser. Not to be used as a fuel for automotive vehicles. Not to be used to prevent waxing in diesel fuel.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier:	World Fuel Services
Supplier address:	Portland House, Bressenden Place London SW1E 5BH UK
Tel:	+44 (0) 207 808 5133
Fax:	+44 (0) 151 922 0626
Email:	marinetechnical@wfscorp.co.uk
Emergency Telephone (24hr):	+44 (0) 333 333 9957

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE ACCORDING TO REGULATION (EC) No. 1272/2008 (CLP)

Classification	Flam. Liq. 3; H226 Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3: H336 Aquatic Chronic 2; H411
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2.2 LABEL ELEMENTS ACCORDING TO ACCORDING TO REGULATION (EC) No. 1272/2008 (CLP)



Hazard pictogram(s):

Signal Word:

Danger.

Hazard statement(s):

H226: Flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H336: May cause drowsiness or dizziness.
H411: Toxic to aquatic life with long lasting effects.
EUH066: Repeated exposure may cause skin dryness or cracking.

Precautionary statement(s):

P102: Keep out of reach of children.
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.
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.
P405: Store locked up.
P501: Dispose of contents/container to approved disposal facility.

2.3 OTHER HAZARDS:

The product does not meet the criteria for PBT or vPvB substances.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCES

Chemical Name	CAS Number	EC Number	REACH Registration Number	Classification
Distillates (Petroleum), hydrotreated light	64742-47-8	265-149-8	649-422-00-2	Flam. Liq. 3; H226 Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3: H336 Aquatic Chronic 2; H411

Please see section 16 for full hazard statements.



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SECTION 4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

- Inhalation:** Remove person to fresh air and keep comfortable for breathing. Keep warm and at rest. If symptoms persist, obtain medical attention.
- Ingestion:** Obtain medical attention immediately. Do not induce vomiting. Do not give anything by mouth because of risk of material entering the lungs and causing lung damage. If person is drowsy or unconscious and vomiting, place on left side with head down. If possible, do not leave unattended and observe closely for adequacy of breathing.
- Skin contact:** Remove contaminated clothing immediately. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
- Eye contact:** Remove contact lenses if present and easy to do. Wash eyes immediately with plenty of water, making sure to rinse under eyelids. If symptoms persist, obtain medical attention.
- Protection of first-aiders:** No action shall be taken involving any personal risk or where suitable training has not been provided.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Skin contact causes irritation, redness and pain. Repeated exposure may cause skin dryness or cracking. Eye contact may cause slight irritation, watering, redness and pain. Inhalation of vapours may cause drowsiness or dizziness. Ingestion may cause irritation of the mouth and digestive tract. If swallowed, aspiration into lungs may result in chemical pneumonia.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

In case of accident or if you feel unwell, seek medical advice immediately. If swallowed, patient should be monitored for signs of breathing difficulty as effects of aspiration may be delayed for up to 48 hours. If breathing is laboured, oxygen should be administered by qualified personnel.

SECTION 5. FIREFIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

- Suitable:** Foam, CO2 or dry powder.
- Not suitable:** Do not use a direct water jet.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Flammable liquid and vapour: Vapour may form explosive mixture with air. Vapour is heavier than air and may accumulate in confined spaces. Vapours may travel considerable distances to ignition sources where they can ignite, flash back or explode. The product will float on surface water and can reignite. Containers exposed to heat may burst due to increase in pressure.

Hazardous thermal decomposition products:

Combustion may liberate toxic fumes: Carbon monoxide, carbon dioxide, various hydrocarbons, nitrogen oxides, sulphur oxides.



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5.3 ADVICE FOR FIRE-FIGHTERS

A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Move undamaged containers from fire area if this can be done safely. Keep fire exposed containers cool by spraying with water. Do not allow to enter drains, sewers or watercourses.

Firefighting measures: Isolate the source of the combustible product. If fire cannot be extinguished, allow it to die out in a controlled manner. Use water to cool down equipment and items exposed to fire.

Additional advice: Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

6.1.1 For non-emergency personnel:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use explosion-proof electrical, ventilating and lighting equipment. Caution – spillage area may be slippery.

Keep upwind. Ensure adequate ventilation. Avoid inhalation of vapours. Avoid contact with skin and eyes. Wear suitable personal protective equipment. Wear appropriate respirator when ventilation is inadequate. (See Section 8).

6.1.2 For emergency responders:

Keep unnecessary personnel away. Wear suitable protective clothing (See Section 8). Contaminated clothing should be thoroughly cleaned.

6.2 ENVIRONMENTAL PRECAUTIONS

Collect spillage. 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 spill occurs on water notify the appropriate authorities and advise shipping of any hazard.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

6.3.1 For containment:

Stop the leak if it is safe to do so. Contain the spillage with sand, earth or any suitable adsorbent material.

6.3.2 For cleaning up:

Use sand, earth or any suitable non-combustible adsorbent material to adsorb spillages. Using non-sparking tools transfer the contaminated absorbent material into a container for disposal.

For spillages on water, remove use appropriate methods such as skimming, booms or adsorbents. For spillages onto soil, remove contaminated soil for remediation or disposal in accordance with local regulations.



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Waste containers used should be plastic-lined sealable drums. Containers should be sealed before being disposed of via an authorised waste disposal contractor.

6.3.3 Other Information:

See Section 8 for personal protective equipment. See Section 13 for waste disposal.

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

Use only outdoors or in a well-ventilated area. Provide adequate ventilation, including local extraction, to ensure occupational exposure limits are not exceeded. Avoid breathing vapours/spray. Avoid contact with skin and eyes. Wear suitable personal protective equipment (See Section 8).

Do not eat, drink or smoke in the vicinity of the product. Wash thoroughly after handling. Take off contaminated clothing and wash it before reuse. Contaminated clothing should be thoroughly cleaned or disposed of as hazardous waste.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Keep away from heat and sources of ignition. Keep away from direct sunlight. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool. Empty containers retain product residue and can be hazardous. Keep away from oxidising agents, reducing agents. This product must never be stored in buildings occupied by people. Drums and small containers should be stored in well-ventilated areas, flameproof cabinets or stores. Keep in a bunded area with a sealed floor to provide containment against spillage. Stack drums to a height not exceeding three meters without the use of racking. Seek specialist advice for the design, construction and operation of bulk storage facilities.

7.3 SPECIFIC END USE(S)

Refer to the end uses as identified section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Workplace exposure limits

Source: EH40/2005, 2nd Ed., 2011.

None assigned.



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Other exposure limits

Source: American Conference of Governmental Industrial Hygienists (ACGIH)

Substance	CAS No.	LTEL (8 HR TWA)		STEL (15 min)		Comments
		ppm	mg/m ³	ppm	mg/m ³	
Kerosene	64742-47-8	-	200	-	-	Can be absorbed through the skin.

Biological Exposure Index (BEI): No biological limit allocated.

DNELs (Workers)

None assigned.

DNELs (Consumers)

Ingestion: 18.8 mg/kg bw/day.

PNEC related information:

Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

8.2 EXPOSURE CONTROLS

8.2.1 Appropriate engineering controls

Provide adequate ventilation to ensure that occupational exposure limits are not exceeded. Local extraction may be required. Eye wash and quick-drench shower facilities should be available in the work area. Contaminated clothing and shoes should be thoroughly washed before reuse.

8.2.2 Individual protection measures, such as personal protective equipment

Eye protection: Goggles or safety glasses with side shields giving complete protection to eyes. (EN 166). Depending on conditions of use, close-fitting eye protection and a face shield may be necessary.

Skin protection: Long sleeve protective clothing. Nitrile, neoprene or PVC apron. Rubber boots

Hand protection: Chemical-resistant gloves. (EN 374). Suitable glove material: nitrile, neoprene or PVC (breakthrough time > 240 minutes). Contact glove supplier to confirm suitable glove material, thickness and breakthrough times.

Respiratory protection: Where airborne levels below the exposure limits cannot be maintained, wear an air-purifying respirator (EN 140) with a Type A/P2 filter or better suitable for organic gases and vapours with a boiling point above 65°C. (EN 14387).

Thermal hazards Wear suitable temperature resistant gloves and protective clothing if the product is heated.



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8.2.3 Environmental exposure controls:

Minimise release to the environment. Inform environmental manager of all incidents involving this product. Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an Occupational Exposure Limit and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Information on suitable methods is available on request.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid (Light Yellow)
Odour:	Characteristic
Odour threshold:	Not available.
pH:	Not applicable.
Melting/freezing point:	<-58oC (-72.4oF)
Initial boiling point and boiling range:	140 – 300°C
Flash point:	Open Cup: >38oC (100.40F)
Evaporation rate:	Not available.
Flammability (solid; gas):	Not applicable
Upper/lower flammability or explosive limits:	Lower: 0.7% Upper: 5%
Vapour pressure:	3 kPa (20°C)
Vapour density:	> 1 (Air = 1)
Relative density:	0.775 to 0.84 (Water=1)
Solubility(ies):	Immiscible in water. Miscible in aromatic solvents.
Partition coefficient: n-octanol/water:	Log Kow: 3-6 (approximate)
Auto-ignition temperature:	250°C
Decomposition temperature:	Not available.
Viscosity:	1.3 – 2.9 cSt (20°C)
Explosive properties:	Not explosive. Vapour may form explosive mixture in air.
Oxidising properties:	Not oxidising.

SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY	Reacts with oxidising agents.
10.2 CHEMICAL STABILITY	The product is stable under normal use conditions
10.3 POSSIBILITY OF HAZARDOUS REACTIONS:	No hazardous reactions expected during normal conditions.
10.4 CONDITIONS TO AVOID	Keep away from sources of ignition, hot surfaces, direct sunlight. Prevent accumulation of vapours. Contact with strong oxidizing agents e.g. chlorates and ammonium nitrate.



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10.5 INCOMPATIBLE MATERIALS:

Oxidising agents e.g. chlorates and ammonium nitrate which may be used in agriculture. Reducing agents. Reducing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

Combustion may liberate toxic fumes: Carbon monoxide, carbon dioxide, various hydrocarbons, nitrogen oxides, sulphur oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Note: All information in this section is for Fuel oil, residual. Information given is based on product data, knowledge of the components and the toxicology of similar products.

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Oral Toxicity:

Low toxicity: LD50 > 5000 mg/kg , Rat

Acute Dermal Toxicity:

Low toxicity: LD50 >2000 mg/kg , Rabbit

Acute Inhalation Toxicity:

Low toxicity: LC50 >5 mg/l / 4 h, Rat High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death. Irritating to skin.

Skin Corrosion/Irritation:

May cause some eye irritation

Serious Eye Damage/Irritation:

Not classified. Not expected to be a skin sensitizer.

Skin sensitisation

Not classified. Not expected to be a respiratory sensitizer.

Respiratory sensitisation:

Carcinogenicity:

The product does not contain substances classified as carcinogenic above the classification thresholds.

Reproductive Toxicity:

The product does not contain substances classified for reproductive toxicity above the classification thresholds.

Specific target organ toxicity – single exposure:

May cause drowsiness or dizziness

Specific target organ toxicity - repeated exposure:

Based on the available data, the classification criteria are not met. Excessive and prolonged inhalation of mists may cause a chronic inflammatory reaction of the lungs and a form of pulmonary fibrosis.

Aspiration hazard:

May be fatal if swallowed and enters airways. Risk of aspiration into lungs resulting in chemical pneumonia.

Information on likely routes of exposure

Inhalation

May cause drowsiness or dizziness.

Skin contact

Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Eye contact

May cause slight eye irritation.

Ingestion

May be fatal if swallowed and enters airways. Risk of aspiration into lungs resulting in chemical pneumonia. Ingestion may cause irritation of the mouth and digestive tract.

Symptoms related to the physical, chemical and

Skin contact causes irritation, redness and pain. Repeated exposure



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toxicological characteristics:

may cause skin dryness or cracking. Eye contact may cause slight irritation, watering, redness and pain. Inhalation of vapours may cause drowsiness or dizziness. Ingestion may cause irritation of the mouth and digestive tract. If swallowed, aspiration into lungs may result in chemical pneumonia.

Other information:

None

SECTION 12. ECOLOGICAL INFORMATION

12.1 TOXICITY

Toxic to aquatic life with long lasting effects. Acute toxicity studies on samples of jet fuel and kerosene streams show acute toxicity values greater than 1 mg/L, typically in the range 1-10 mg/L. Tests were carried out on WAF in closed systems to prevent evaporative loss.

Kerosene (petroleum), hydrosulfurised:

EL₅₀ (*Daphnia magna*): 1.4 mg/L, 48 h (WAF)

NOEL (*Daphnia magna*): 0.3 mg/L, 48 h (WAF)

NOEL (*Daphnia magna*): 0.48 mg/L, 21 days (WAF)

LOEL (*Daphnia magna*): 1.2 mg/L, 21 days (WAF)

EL₅₀ (*Daphnia magna*): 0.89 mg/L, 21 days (reproduction)(WAF)

EL₅₀ (*Raphidocelis subcapitata*): 1-3 mg/L, 72 h (growth rate) (WAF)

NOEL (*Raphidocelis subcapitata*): 1.0 mg/L, 72 h (growth rate) (WAF)

Kerosenes:

NOEL (*Oncorhynchus mykiss*): 0.098 mg/L, 28 day (estimated using PETROTOX computer model)

NOEL (*Tetrahymena pyriformis*): 677.9 mg/L, 72 h (estimated using PETROTOX computer model)

12.2 PERSISTENCE/DEGRADABILITY:

Oxidises rapidly by photochemical reactions in air. Major components are inherently biodegradable. Persists under anaerobic conditions. The volatile components oxidise rapidly by photochemical reactions in air.

12.3 BIOACCUMULATION POTENTIAL:

The product components have measured or predicted Log Kow values in the range 3 – 6 or above and therefore have potential to bio accumulate. In practice, metabolic processes may reduce bio concentration.

12.4 MOBILITY:

Floats on water. Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. If it enters soil, it will adsorb to soil particles and will not be mobile. Large volumes may penetrate soil and could contaminate groundwater.

12.5 PBT & vPvB ASSESSMENT:

The product does not contain substances assessed to be PBT or vPvB.

12.6 OTHER ADVERSE EFFECTS:

Films formed on water may affect oxygen transfer and damage organisms.



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12.7 ADDITIONAL INFORMATION: None

SECTION 13. DISPOSAL CONSIDERATIONS

- 13.1 WASTE DISPOSAL:** Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor to deal satisfactorily with this type of product should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
- 13.2 PRODUCT DISPOSAL:** Must be disposed of as Hazardous Waste.
- 13.3 PACKAGING WASTE:** Waste packaging should be recycled wherever possible. Incineration or landfill should only be considered when recycling is not feasible. Care should be taken when handling emptied containers that have not been cleaned out. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally.

SECTION 14. TRANSPORT INFORMATION

ADR

14.1	UN NUMBER	1223
14.2	UN PROPER SHIPPING NAME	KEROSENE
14.3	TRANSPORT HAZARD CLASS(ES)	3
14.4	PACKING GROUP	III
14.5	ENVIRONMENTAL HAZARDS	Yes
14.6	SPECIAL PRECAUTIONS FOR THE USER	Read SDS and supplier instructions on correct use of the product.

ADN

14.1	UN NUMBER	1223
14.2	UN PROPER SHIPPING NAME	KEROSENE
14.3	TRANSPORT HAZARD CLASS(ES)	3
14.4	PACKING GROUP	III
14.5	ENVIRONMENTAL HAZARDS	Yes
14.6	SPECIAL PRECAUTIONS FOR THE USER	Read SDS and supplier instructions on correct use of the product.

RID

14.1	UN NUMBER	1223
14.2	UN PROPER SHIPPING NAME	KEROSENE
14.3	TRANSPORT HAZARD CLASS(ES)	3
14.4	PACKING GROUP	III



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14.5	ENVIRONMENTAL HAZARDS	Yes
14.6	SPECIAL PRECAUTIONS FOR THE USER	Read SDS and supplier instructions on correct use of the product.

IATA/ICAO

14.1	UN NUMBER	1223
14.2	UN PROPER SHIPPING NAME	KEROSENE
14.3	TRANSPORT HAZARD CLASS(ES)	3
14.4	PACKING GROUP	III
14.5	ENVIRONMENTAL HAZARDS	Yes
14.6	SPECIAL PRECAUTIONS FOR THE USER	Read SDS and supplier instructions on correct use of the product.

IMDG

14.1	UN NUMBER	1223
14.2	UN PROPER SHIPPING NAME	KEROSENE
14.3	TRANSPORT HAZARD CLASS(ES)	3
14.4	PACKING GROUP	III
14.5	ENVIRONMENTAL HAZARDS	Marine pollutant.
14.6	SPECIAL PRECAUTIONS FOR THE USER	Read SDS and supplier instructions on correct use of the product.
14.7	TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE	The product is not intended to be transported in bulk.

SECTION 15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) No. 1907/2006 as amended. The product has been classified in accordance with Regulation (EC) No. 1272/2008 (CLP), Directive 67/548/EEC & Directive 1999/45/EC.

15.2 CHEMICAL SAFETY ASSESSMENT

A chemical safety assessment has been carried out.

SECTION 16. OTHER INFORMATION

Full text of relevant Hazard statements and Precautionary statements:

Hazard Statement(s):	H226: Flammable liquid and vapour.
	H304: May be fatal if swallowed and enters airways.
	H315: Causes skin irritation.
	H336: May cause drowsiness or dizziness.
	H411: Toxic to aquatic life with long lasting effects.



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Abbreviations:

CAS:	Chemical Abstracts Service;
EC ₅₀ :	Effective Concentration 50%
EL ₅₀ :	Effective Loading rate 50%
LC ₅₀ :	Lethal Concentration 50%
LD ₅₀ :	Lethal Dose 50%
LOEL:	Lowest Observed Effect Level
NOEL:	No Observed Effect Level
PBT:	Persistent, Bioaccumulative and Toxic.
vPvB:	Very Persistent and Very Bioaccumulative
WAF:	Water Accommodated Fraction
LTEL:	Long term exposure limit
STEL:	Short term exposure limit
TWA:	Time weighted average
DNEL:	Derived no effect level
PNEC:	Predicted no effect concentration

History:

Version 01 Issued 16/03/2012; First Release
Version 02 Issued 11/03/2016; Updated for CLP, Sections 1-16 changed.

Disclaimer:

The above information is based on our current knowledge of the product. The purpose of this data sheet is to describe the product in terms of its safety and environmental requirements. It is the user's responsibility to satisfy themselves as to the application of this information and/or recommendations for their own use. This safety data sheet contains important information to ensure the safe storage, handling and use of this product, it does not however constitute an assessment of workplace risks.

Further information:

Users are advised to refer to relevant legislation, approved codes of practice and guidance available from the Health & Safety Executive (website: <http://www.hse.gov.uk>) and to the IP Codes of Practice available from the Energy Institute (website: <http://www.energyinst.org.uk>)