

Material Safety for Gas Oil (IS 251 or BS 2869 CL A2 + D).

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY	
Product Name:	Gas Oil (IS 251 or BS 2869 CL A2 + D)
Product Code:	MGO
Product Type:	Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment.
Supplier:	Topaz Energy Ltd, Beech Hill, Clonskeagh, Dublin 14 Tel: +353 1 202 8888 Fax: + 353 1 283 8320
2. COMPOSITION/INFORMATION ON INGREDIENTS	
Synonyms:	Diesel, IGO, Gas Oil, Heating Oil.
Preparation description:	Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C10 to C22 range. May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species, are present. It may also contain one or more of the following additives: anti-oxidants, corrosion inhibitors, flow improvers, biocides, dyes, markers, deodorants, reodorants, static dissipators, anti-foams, de-hazers, metal de-activators, icing inhibitors proprietary performance improving additives.
Dangerous components/constituents:	Component name CAS number Content range EC hazard R phrases Fuel oil No.2 or Fuel oil No 4 68476-30-2 or 68476-31-3 >99 %(m/m) Carc Cat 3 R40-65-66 Note: EU Dangerous Substances Directive, 67/548/EEC, Annex I number for the above substance is 649-224-00-6. Contains the following substances for which exposure limits apply: No ACGIH limits established.
3. HAZARDS IDENTIFICATION	
Human health hazards:	Possible risks of irreversible effects. Product classified as a Category 3 carcinogen. Harmful: may cause lung damage if swallowed. Aspiration into the lungs may cause chemical pneumonitis which can be fatal. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Under conditions of poor personal hygiene, excessive exposure may lead to irritation, oil acne and folliculitis and development of warty growths which may subsequently become malignant. Prolonged exposure to vapour concentrations may affect the central nervous system.
Safety hazards:	Not classified as flammable, but will burn.
Environmental hazards:	Harmful to aquatic organisms. May cause long term adverse effects in the environment. Large volumes may penetrate soil and could contaminate groundwater. Not readily biodegradable. Has the potential to bioaccumulate. Persists under anaerobic conditions.
4. FIRST AID MEASURES	
Symptoms and effects:	Splashes into the eye may cause irritation. If ingested can lead to irritation of the mouth, irritation of the throat, irritation of the digestive tract, vomiting. Aspiration into the lungs may occur directly or following ingestion. This can cause chemical pneumonitis which may be fatal. Prolonged exposure to vapour/mist concentrations above the recommended.

	occupational exposure standard may cause: headache, dizziness, nausea, irritation of the eyes, upper respiratory tract, mouth, and digestive tract, cardiac irregularities, asphyxiation, unconsciousness and even death.
First Aid - Inhalation:	Remove to fresh air. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeat absent give external cardiac compression. Monitor breathing and pulse. OBTAIN MEDICAL ATTENTION IMMEDIATELY.
First Aid - Skin:	Wash skin with water using soap if available. Contaminated clothing must be removed as soon as possible. It must be laundered before reuse.
First Aid - Eye:	Flush eye with water. If persistent irritation occurs, obtain medical attention.
First Aid - Ingestion:	DO NOT DELAY. Do not induce vomiting. Protect the airway if vomiting begins. Give nothing by mouth. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. OBTAIN MEDICAL ATTENTION IMMEDIATELY.
Advice to physicians:	Treat symptomatically. Diagnosis of ingestion of this product is by the characteristic odour on the victim's breath and from the history of events. In cases of ingestion, consider gastric lavage. Gastric lavage must only be undertaken after cuffed endotracheal intubation in view of the risk of aspiration. In cases of chemical pneumonitis, antibiotic and corticosteroid therapy should be considered. Administration of medicinal liquid paraffin may reduce absorption from the digestive tract.
5. FIRE FIGHTING MEASURES	
Specific hazards:	Hazardous combustion products may include: carbon monoxide, oxides of nitrogen, oxides of sulphur, unburnt hydrocarbons.
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:	Water in a jet. Use of Halon extinguishers should be avoided for environmental reasons.
Other information:	Keep adjacent drums and tanks cool by spraying with water.
6. ACCIDENTAL RELEASE MEASURES	
Personal precautions:	Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Do not breathe: vapour, mists. Avoid contact with: skin, eyes and clothing. Take off immediately all contaminated clothing.
Personal protection:	Wear impervious overalls, PVC or nitrile rubber gloves, safety shoes or boots - chemical resistant, monogoggles.
Environmental precautions:	Prevent from entering into drains, ditches or rivers. Use appropriate containment to avoid environmental contamination.
Clean-up methods - small spillage:	Absorb or contain liquid with sand, earth or spill control material. Shovel up and place in a labelled sealable container for subsequent safe disposal. Do not disperse using water.
Clean-up methods - large spillage:	Transfer to a labelled, sealable container for product recovery or safe disposal. Otherwise treat as for small spillage.
Other information:	Local authorities should be advised if significant spillages cannot be contained. Observe all relevant local regulations. See Section 13 for

	information on disposal.
7. HANDLING AND STORAGE	
Handling:	When using do not eat, drink or smoke. Only use in well ventilated areas. Take precautionary measures against static discharges. Earth or bond all equipment.
Handling temperature:	Ambient.
Storage:	Locate tanks away from heat and other sources of ignition. Do not store in unsuitable, unlabelled or incorrectly labelled containers. Keep container tightly closed in a dry, well-ventilated place away from direct sunlight and other sources of heat or ignition. Prevent ingress of water. Drums should be correctly stacked to a maximum of 3 high. Keep in a bunded area. Keep out of reach of children.
Storage temperature:	Ambient.
Product transfer:	Electrostatic charges may be generated during pumping. Ensure electrical continuity by bonding all equipment. Avoid splash filling. Wait 10 minutes after tank filling before opening hatches or manholes.
Tank cleaning:	Cleaning, inspection and maintenance of storage tanks is a specialist operation which requires the implementation of strict procedures and precautions. These include issuing of work permits, gas-freeing of tanks, using a manned harness and lifelines and wearing air-supplied breathing apparatus. Prior to entry and whilst cleaning is underway, the atmosphere within the tank must be monitored using an oxygen meter and/or explosimeter. Additional precautions are required where the tank may in the past have contained leaded gasoline. Consult the Associated Octel Company publication 'Leaded Gasoline Tanks - Cleaning and Disposal of Sludge'.
Recommended materials:	For containers, use: mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. For container linings, use: amineadduct cured epoxy paint. For seals and gaskets, use: compressed asbestos fibre, PTFE, Viton A, Viton B.
Unsuitable materials:	Examples of materials to avoid in the construction of facilities for the storage, handling and distribution of this product are: copper, copper alloys (ferrous and non-ferrous), zinc, zinc alloys. Synthetic materials such as plastics and fibreglass may also be unsuitable, depending on the material specification and intended use. Materials for packages, containers (including containers for the retention or despatch of samples) and container linings must not adversely affect the quality of the product. They must be impermeable and must not be weakened or otherwise affected by the product. Examples of materials to avoid are: natural rubber, polymethyl methacrylate, polystyrene, polyvinyl chloride, polyisobutylene. Polyethylene and polypropylene are also unsuitable unless they are high density types which have been specifically tested for compatibility with this product.
Other information:	Ensure that all local regulations regarding handling and storage facilities are followed. Avoid the use of plastic containers for draining or sampling purposes. Never siphon by mouth.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION	
Occupational exposure	8Hour TWA max 100mgs per M3

standards:	
Respiratory protection:	Not normally required. In a confined space self-contained breathing apparatus may be required.
Hand protection:	PVC or nitrile rubber gloves if splashes are likely to occur.
Eye protection:	Monogoggles if splashes are likely to occur.
Body protection:	Wear overalls to minimise contamination of personal clothing. Launder overalls and undergarments regularly. Safety shoes or boots - chemical resistant.
9. PHYSICAL AND CHEMICAL PROPERTIES	
Physical state:	Liquid at ambient temperature
Colour:	Green
Odour:	Characteristic
Initial boiling point:	Ca. 170°C
Final boiling point:	Ca. 390°C
Vapour pressure:	<0.1 kPa at 40°C
Density:	820-900 kg/m ³ at 15°C
Kinematic viscosity	2-7 mm ² /s at 40°C
Vapour density (air=1):	> 5
Pour point:	< -15oC
Flash point:	> 56°C (PMCC)
Flammability limit - lower:	circa 1 %(V/V)
Flammability limit - upper:	circa 6 %(V/V)
Auto-ignition temperature	> 220 °C
Explosive properties:	In use, may form flammable/explosive vapour-air mixture
Oxidizing properties:	None
Solubility in water:	Data not available
n-octanol/water partition coefficient:	log Pow = 3-7
Evaporation rate:	Data not available
10. STABILITY/REACTIVITY	
Stability:	Stable.
Conditions to avoid:	Heat, flames and sparks.
Materials to avoid:	Strong oxidizing agents.
Hazardous decomposition products:	None known.
11. TOXICOLOGICAL INFORMATION	
Basis for assessment:	Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the toxicology of similar products.
Acute toxicity-oral:	LD50 >5000 mg/kg.
Acute toxicity-dermal:	LD50 >2000 mg/kg.
Acute toxicity-inhalation:	LC50 >5 mg/l.
Eye irritation:	Expected to be slightly irritant.
Skin irritation:	Expected to be slightly irritant.
Skin sensitization:	Not expected to be a skin sensitizer.
(Sub) chronic toxicity	Repeated skin exposure expected to cause moderate to severe irritation. Repeated inhalation of mists expected to cause irritation of the respiratory tract.
Carcinogenicity:	Dermal application to mice causes skin tumours.
Mutagenicity:	Not considered to be a mutagenic hazard.

Reproductive toxicity:	Does not impair fertility. Not a developmental toxicant.
Human effects:	Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Under conditions of poor personal hygiene, excessive exposure may lead to irritation, oil acne and folliculitis and development of warty growths which may subsequently become malignant. See Section 4 for information regarding acute effects to humans.
12. ECOLOGICAL INFORMATION	
Basis for assessment:	Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the ecotoxicology of similar products.
Mobility:	Floats on water. Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. Large volumes may penetrate soil and could contaminate groundwater.
Persistence/degradability:	Not readily biodegradable. Persists under anaerobic conditions. Oxidizes rapidly by photochemical reactions in air.
Bioaccumulation:	Has the potential to bioaccumulate. May cause tainting of fish and shellfish.
Ecotoxicity:	Poorly soluble mixture. Harmful, $10 < LC/EC50 < 100$ mg/l, to aquatic organisms. (LC/EC50 expressed as the nominal amount of product required to prepare aqueous test extract). Low acute toxicity to mammals. May cause physical fouling of aquatic organisms.
Sewage treatment:	Product is expected to be harmful, $EC50 > 10-100$ mg/l, to organisms in sewage treatment plants. (EC50 expressed as the nominal amount of product required to prepare aqueous test extract).
Other information:	This product is a preparation. The EC has not yet defined criteria for classifying preparations as dangerous for the environment. However, the refinery streams which constitute > 99 %(m/m) of this product meet the criteria for classification as dangerous for the environment, with the following Risk phrases: R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
13. DISPOSAL CONSIDERATIONS	
Precautions:	See Section 8.
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 should be established beforehand. Do not dispose into the environment, in drains or in water courses.
Product disposal:	
Container disposal:	200 litre drums should be emptied and returned to the supplier or sent to a drum conditioner without removing or defacing markings or labels. Drums should not be reused without first obliterating all markings.
Local legislation:	Dangerous Substances (Conveyance of Petroleum by Road) Regulations 1979 - SI No 314 of 1979. The European Communities (Waste Oils) Regulations 1992 – SI 399 of 1992. Local Government (Water Pollution) (Amendment) Act 1990.
14. TRANSPORT INFORMATION	
UN Number:	1202
UN Class/Packing Group:	3, III

UN Proper Shipping Name:	Gas oil
IMO Class/Packing Group:	3.3, III
UN Number (sea transport, IMO):	1202
IMO Marine Pollutant:	No
IMO Class/Packing Group:	3.3, III
IMO Symbol:	Flammable liquid
IMO Marine Pollutant:	No
IMO Proper shipping name:	Gas oil
ADR/RID Class/Item:	3, 31° (c)
ADR/RID Kemler Number:	30-1202
ADR/RID Symbol:	Flammable liquid
ADNR Class/Item:	
UN Number (air transport, ICAO):	1202
IATA/ICAO Class/Packing Group:	3, III
IATA/ICAO Symbol:	Flammable Liquid
IATA/ICAO Proper Shipping Name:	Gas oil
Local regulations:	Dangerous Substances (Conveyance of Petroleum by Road) Regulations 1979 - SI No 314 of 1979. European Communities (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations 1994 - SI No 77 of 1994. Local Government (Water Pollution) (Amendment) Act 1990. EC Directive 94/63/EC on VOC.
15. REGULATORY INFORMATION	
EC Label name:	Contains Gas Oil– unspecified
EC Classification:	Carcinogenic, category 3, Harmful
EC Symbols:	Xn
EC Risk Phrases:	R40 Possible risks of irreversible effects. R65 Harmful: may cause lung damage if swallowed.
EC Safety Phrases:	S2 Keep out of reach of children. S24 Avoid contact with skin. S36/37 Wear suitable protective clothing and gloves. S43 In case of fire use foam/dry powder/CO2 - Never use water. S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
EINECS (EC):	All components listed
National Legislation:	Dangerous Substances (Retail and Private Petroleum Stores) Regulations 1979 - SI No 311 of 1979. Dangerous Substances (Conveyance of Petroleum by Road) Regulations 1979 - SI No 314 of 1979. Safety, Health and Welfare at Work Act, 1993. Local Government (Water Pollution) (Amendment) Act 1990. The European Communities (Waste Oils) Regulations 1992 – SI 399 of 1992. EC Directive 94/63/EC on VOC. European Communities (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations 1994 - SI No 77 of 1994. European Communities (Dangerous Substances & Preparations Marketing and Use) Regulations 1994 - SI No 79 of 1994.
16. OTHER INFORMATION	

Uses and restrictions:	Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment. This product must not be used in applications other than the above without first seeking the advice of the supplier. This product is not to be used: as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser.
Technical contact point:	PQE
SDS history:	Edition number: 3 First issued: June 1, 1993 Previous revisions: April 16, 1996 Revised: February 22nd 2001
Revisions highlighted:	Sections 2, 3 and 15: classification and labelling for the aspiration hazard revised in line with the 22nd ATP to the EU Dangerous Substances Directive. Section 2, 3 and 12: recommended CONCAWE environmental classification for gas oil added. Sections 3 and 5: Comment on distant ignition of vapour deleted. Section 3, 4, 6, 7 and 11: Editorial changes. Section 8: OEL for oil mist deleted. Section 15: error in EC Classification corrected. Changes indicated by vertical line to left of text.
SDS distribution:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
References:	Useful references include the following: The Institute of Petroleum, London, 'Marketing Safety Code', Heyden and Son Limited, 1978 Applied Science, London, 'European Model Code of Safe Practice in the Storage and Handling of Petroleum Products Part 1: Operations', 1973. CONCAWE, Brussels. 'Kerosines/Jet fuels', Product Dossier No 94/106. Associated Octel Company, 'Leaded gasoline tanks - cleaning and disposal of sludge'. This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.