



MATERIAL SAFETY DATA SHEET

Product Name:
Marine Diesel (3095)

SECTION 1 – PRODUCT IDENTIFICATION AND USE

Product name	Marine Diesel Fuel	PIN #, UN #	1202
Chemical name	None	TDG, DOT class	Class 3
Common names and Product use	API No. 2 fuel oil. Number 2 burner oil.	Packing group	III
Product use	Fuel	Shipping name	Diesel fuel: Fuel Oil: Gas Oil Or Heating Oil, light
WHMIS classification	Combustible Class B Division 3 Very toxic Class D Division 1 Subdivision A		
Hazard codes	NFPA Health 4 Flammability 4 Reactivity 0	HMIS Health 4 Flammability 4 Reactivity 0	
	<i>NFPA & HMIS Ratings: 0=Insignificant/No Hazard. 1=Slight Hazard. 2=Moderate Hazard. 3=High/Serious Hazard. 4=Extreme/Severe</i>		
Supplier	Irving Oil Limited, Refining Division Box 1260, Saint John New Brunswick Canada E2L 4H6	Phone Emergency Refinery	(506) 202-2000 1-800-424-9300 (506) 202-3000

SECTION 2 – HAZARDOUS INGREDIENTS

Ingredients	CAS#	Wt (%)	ACGIH-TLVs (2004)	OSHA PELs (2004) (general industry)	NIOSH RELs (2004)	LD ₅₀ (rat, oral)	LC ₅₀ (rat, 4 hours)
API No. 2 fuel oil	68476-30-2	100	100 mg/m ³ TWA (vapour & dust)	NAv for this product name or CAS#		>5 g/kg	~5g/m ³
<i>Mav contain:</i> Benzene	71-43-2	Trace	0.5 ppm TWA 2.5 ppm STFI	1 ppm TWA 5 ppm STFI	0.1 ppm TWA 1.0 ppm STFI	930 mg/kg	3,200 ppm
Polycyclic aromatic hydrocarbons (PAHs) which mav include: Naphthalene	Various	Up to 10	Various	Various	Various	Various	Various
91-20-3	Trace	10 ppm TWA 15 ppm STFI	10 ppm TWA	10 ppm TWA 15 ppm STFI	490 mg/kg	>170 mg/m ³	
<i>Mav also contain:</i> Sulphur	7704-34-9	0.05-0.50	NAv	NAv	NAv	>8.4 mg/kg	NAv
<i>Which mav result in the evolution of:</i> Hydrogen sulphide (H ₂ S)	7783-04-6	NAp	10 ppm TWA 15 ppm STFI	20 ppm CEILING	10 ppm CEILING	NAp	444 ppm

Marine diesel fuel is a complex mixture of hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Marine diesel fuel contains hundreds of individual organic chemicals. This section identifies only some of the well-known chemical

SECTION 3 – PHYSICAL DATA

Form	Slightly viscous, oily, liquid	Specific gravity	0.83 to 0.879 @ 20°C
Colour	Yellowish-brown	Vapour density	NAv
Odour	H ₂ S smells like rotten eggs Note: H₂S deadens the sense of smell. Absence of rotten egg smell does not mean absence of H₂S.	Vapour	2.12 to 26.4 mm Hg @ 21°C
		Evaporation rate	NAv
		Boiling point	184 to 339°C (362 to 643°F)
Odour	<0.15 ppm for H ₂ S	Freezing point	NAv
Coefficient of water/oil	3.3 to 7.06 (Log K _{ow})	pH	NAp

SECTION 4 – FIRE AND EXPLOSION HAZARDS

Flammability	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Condition	Easily ignited by heat, sparks or flames.
Flash point	38 to 54°C (100 to 130°F) (cc)	Auto ignition	257°C (494°F)
Lower flammable	0.6 to 1.3%	Upper flammable limit	6 to 7.5%
Explosion data: Sensitivity to:	Mechanical impact	Not expected to be sensitive	Static discharge Vapour: yes
Means of extinction	In general, do not extinguish fire unless flow can be stopped. Use carbon dioxide, dry chemical, or foam. Cool containers with flooding quantities of water until well after the fire is out.		
Special precautions	Vapour is heavier than air. It will spread along the ground & collect in low or confined areas (sewers, basements). Also travels to source of ignition and flash back. Containers mav explode when heated.		
Hazardous combustion products	H ₂ S and sulphur dioxide (SO ₂). Carbon monoxide. Nitrogen oxides. PAHs and other aromatic hydrocarbons.		

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SECTION 5 – REACTIVITY INFORMATION

Stability	Stable
Conditions to avoid	Sources of ignition. Static discharges. High temperatures.
Incompatible substances	Oxidizers such as peroxides, nitric acid, and perchlorates.
Hazardous decomposition products	H ₂ S, SO ₂ , Carbon monoxide, nitrogen oxides, and numerous aromatic

SECTION 6 – HEALTH HAZARD INFORMATION

Route of Entry	<input type="checkbox"/> Eye <input checked="" type="checkbox"/> Skin absorption <input checked="" type="checkbox"/> Inhalation <input checked="" type="checkbox"/> Ingestion	Diesel fuel itself, as well as benzene & naphthalene	Hazardous	<input checked="" type="checkbox"/> Eye <input checked="" type="checkbox"/> Skin
Acute exposure	Coughing, headache, and giddiness following inhalation. Aspiration into the lungs can cause severe pneumonitis (serious lung irritation), with coughing, gagging, shortness of breath, chest pain, and/or pulmonary edema (swelling). Ingestion may produce nausea, vomiting, and cramping. Kidney effects and systemic edema have been reported after severe exposure. H ₂ S is very toxic. At concentrations as low as 1 to 5 ppm, nausea and severe eye irritation may occur. Sense of smell may be impaired at about 20 ppm, with headache and respiratory tract lung irritation. At 250 to 500 ppm, potentially fatal pulmonary edema (fluid in the lungs) may occur. Dizziness, sudden (often fatal) collapse, unconsciousness, and death occur at higher concentrations. Note: Pulmonary edema may be delayed as long as 48 hours after exposure.			
Chronic exposure	Kidney, gastrointestinal, blood, and skin disorders. Headache, nausea, vomiting. Fatigue, and severe nervous and respiratory system symptoms may follow survival of H ₂ S poisoning.			
Carcinogenicity	Exposure to fuel oils during refining is considered "probably carcinogenic to humans". Benzene and certain PAHs are known to be carcinogenic.			
Mutagenicity	Not known to be mutagenic	Sensitization	No	
Irritancy	Skin and respiratory tract	Teratogenicity	Not available	
Toxicologically synergistic	Other petroleum hydrocarbons and other chemicals that cause central nervous system depression can be expected to produce additive or synergistic effects.			
		Reproductive	Not available	

SECTION 7 – FIRST AID

Inhalation	Move victim to fresh air. Give artificial respiration if breathing has stopped and if a qualified AR administrator is available. Obtain medical attention immediately.
Ingestion	Never give anything by mouth if the person is unconscious, rapidly losing consciousness, or convulsing. If the person is conscious, have them drink 8 to 10 ounces of water or milk to dilute the material in the stomach. Do not induce vomiting. If vomiting occurs spontaneously, have the person lean forward to avoid aspiration. Obtain medical attention immediately.
Eye	If irritation occurs, flush eye with lukewarm, gently flowing fresh water.
Skin	Quickly and gently blot away excess chemical. Gently remove contaminated clothing and shoes under running water. Wash gently and thoroughly with water and non-abrasive soap. Obtain medical assistance.

SECTION 8 – PRECAUTIONARY MEASURES

Do not attempt rescue of an H₂S knockdown victim without the use of proper respiratory protective equipment.

Personal protective equipment	Gloves	Nitrile, Viton™, Polyvinylchloride, Tychem®BR/LV, or Tychem®TK preferred.
	Eye	Chemical safety goggles or face shield, as a good general safety practice.
	Respirator	NIOSH-approved SCBA or air line respirator with escape cylinder.
	Clothing & footwear	Coveralls to prevent skin contact with product. If clothing or footwear becomes contaminated with product, completely decontaminate it before re-use, or discard it.

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Engineering controls	Enclose processes. Use local exhaust ventilation to remove vapour at its site of generation. Handle laboratory samples in a fume hood. Use mechanical ventilation in confined spaces.
Handling procedures & equipment	Avoid heating open containers of product so as to minimize vapour production and accumulation. Use non-sparking equipment, explosion-proof ventilation, and intrinsically safe electrical equipment. Ground handling equipment. Have clean emergency eyewash and shower readily available in the work area.
Leak & spill Procedure	Keep unauthorized persons away Eliminate all sources of ignition. Ventilate area. Stop leak if it can be done safely. Prevent entry into sewers, waterways, or confined spaces. Absorb or cover with dry earth, sand or other non-combustible material and use clean, non-sparking tools to transfer to container.
Waste	Consult local authorities for advice.
Storage	May be stored at ambient temperatures. Containers should be vented and equipped with a flame arrester.
Shipping	Stable during transport. May be transported hot.

SECTION 9 – PREPARATION DATE OF MSDS

Prepared by	Irving Oil Limited, Refining Division	Phone	(506) 202-3000
Revision date	July 28, 2005	To re-order MSDS,	(506) 202-2000

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