



MATERIAL SAFETY DATA SHEET

HEALTH, SAFETY AND ENVIRONMENTAL DATA

Material	Marine Diesel Oil
Reference	ISO 8217 Grade DMC
Synonyms	Blended Marine Diesel Oil, MDO
Product Register	FC20
Manufacturer/Supplier	Tramp Oil & Marine Limited
Application	Fuel for diesel engines or heating/boiler plant
Typical Physical Characteristics	<p>Appearance: Black, low viscosity liquid having characteristic petroleum odour</p> <p>Density at 15°C kg/l: 0.90 (0.92 max)</p> <p>Boiling range °C: Not applicable</p> <p>Flash point PMCC °C: 70 (60 min)</p> <p>Viscosity at 40°C CST: 8 (14 max)</p> <p>Ash content % (m/m): 0.03 (0.05 max)</p> <p>Carbon residue (Ramsbottom) % (m/m): 1.5 (2.5 max)</p> <p>Auto Ignition Temp °C (in air): 270</p> <p>Vapour pressure mm Hg @ 20°C: negligible to 1</p> <p>Vapour density: heavier than air</p> <p>Solubility in water: negligible</p>
Chemical Composition	<p>A blend of mainly middle distillates in C10 -C30 range of paraffinic, naphthenic, or aromatic hydrocarbons, and up to 20% vol. of residual fuel. Contains all components associated with residual fuel oils.</p> <p>CAS No. *68334-30-5</p>
Hazardous Components	<p>Cracked components containing polycyclic aromatic hydrocarbon compounds may be present some of which have been shown to induce skin cancer in laboratory animals.</p> <p>Hydrogen sulphide (H₂S, an extremely toxic and highly flammable gas), may collect in vapour spaces where fuel oils are stored.</p> <p>Vanadium and other heavy metal oxides may be present in the combustion products of engines and boilers operating on blended marine diesel oil.</p>
Reactivity	Stable, but avoid strong oxidizing agents.

<p>Potential Hazards</p>	<p>Health:</p> <p>Professional assessment of available data, including limited information on the biological activity of the material and its components indicates that this material:</p> <ul style="list-style-type: none"> • will be unlikely to cause harm to the skin on brief or occasional contact but may cause dermatitis and serious irreversible skin disorders on repeated or prolonged contact. • it is unlikely to cause sensitization by skin contact. • will be unlikely to cause more than transient stinging or redness if accidental eye contact occurs. • may be irritating to the eyes if exposed to vapours, mist or fumes. • will be unlikely to cause harm if accidentally swallowed, although ingestion of large amounts may cause gastro-intestinal effects such as discomfort, nausea, vomiting and diarrhoea. • will injure the lungs if aspiration occurs, e.g. during vomiting. • inhalation of mists, vapours or fumes may cause irritation to the nose and throat. Precautions must be taken to prevent exposure to hydrogen sulphide. <p>Estimated rat oral LD50 greater than 5g/kg. Estimated rabbit dermal LD50 greater than 5g/kg.</p> <p>Safety:</p> <p>Bulk liquids will present virtually no fire hazard but trace quantities of low boiling hydrocarbons can build up in the vapour space of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point of the fuel; (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapour in fuel oil tank headspaces).</p> <p>Will present a flammability hazard if heated above flash point, if fuel contacts hot surfaces or leaks from high pressure fuel pipes, vapours and/or mists can be generated which can create a flammability or explosion hazard.</p> <p>Safety contd...</p> <p>Combustion produces carbon dioxide, nitrogen oxides, sulphur oxides and water vapour. Potentially harmful carbon monoxide may be formed where combustion efficiency is poor.</p> <p>Hydrogen sulphide can collect in the head-space of fuel storage tanks. Concentrations above 10 ppm may cause eye irritation. Higher concentrations may be irritant to the skin and respiratory system. Extremely high concentrations (1000 -2000 ppm) may be immediately lethal. The atmosphere in empty storage tanks must be carefully checked before entering.</p> <p>Environment:</p> <p>Moderately toxic to aquatic life.</p>
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Exposure Limits	<p>None established. Control mists to below 5mg/m³.</p> <p>If present, hydrogen sulphide: TLV (8 hr TWA) 10 ppm STEL (10 min.) 15 ppm</p>
Precautions	<p>Avoid skin contact and observe good personal hygiene. Change heavily contaminated clothing. Wash hands before eating and drinking. Avoid contact with eyes. Avoid inhalation of mist, fumes, vapours and products of combustion. Ensure efficient ventilation of areas where marine diesel oils are utilised. When hydrogen sulphide is present avoid exposure or use self-contained breathing apparatus.</p> <p>Containers should be labelled correctly and kept closed when not in use. Care should be taken to avoid high pressure fuel injection injuries (e.g. from fuel injection nozzles).</p> <p>Never use gasoline or kerosine to remove marine diesel oil from skin or clothing. Avoid inhalation of dust from combustion/exhaust spaces.</p> <p>Do not enter storage tanks without breathing apparatus unless the tank has been well ventilated and the tank atmosphere has been shown to contain hydrocarbon vapour concentrations of less than 1 per cent of the lower flammability limit and an oxygen concentration of at least 20 per cent volume.</p> <p>A check must always be made for the presence of hydrogen sulphide (H₂S) prior to tank entry. If there is any doubt about the tank atmosphere and/or if H₂S is present at above 10 ppm volume concentration, only enter using a positive pressure breathing apparatus. Continue to ventilate the tank and check that it remains H₂S free.</p> <p>Always have sufficient people standing by outside the tank with breathing apparatus and appropriate equipment to effect a quick rescue.</p>
Protective Clothing	<p>Wear impervious protective clothing, including gloves, if skin contact is likely during handling or use. Wear eye protection (face visor or goggles) if splashing can occur.</p> <p>Wear full breathing apparatus or positive pressure filter sets and protective clothing, including gloves, for work in combustion/exhaust spaces and when handling diesel oil ash/dust. For inspection purposes, wear full face dust respirator and protective clothing.</p> <p>Approved positive pressure breathing apparatus must be used when entering storage tanks if hydrogen sulphide is present above 10 ppm volume concentration.</p>

<p>First Aid/Action on Contact</p>	<p>Skin: Wash skin thoroughly with soap and water after contact. Change contaminated clothing and laundry before re-use. Medical advice must be obtained urgently if fuel under high pressure has been injected through the skin.</p> <p>Eye: Wash eye thoroughly with water. Seek medical advice if pain or redness develops and persists.</p> <p>Ingestion: If contamination of the mouth occurs, wash it out thoroughly with water. Seek medical advice if large amounts are swallowed - do not induce vomiting because of the risk of aspiration into the lungs.</p> <p>Inhalation: If inhalation of mists, fumes or vapour causes irritation to the nose and throat, or coughing, remove to fresh air. Seek medical attention if symptoms persist. If the casualty is unconscious but breathing, place in the unconscious (recovery) position. If the casualty is not breathing, give mouth to mouth ventilation and external cardiac massage as necessary.</p>
<p>First Aid/Action on Exposure to Hydrogen Sulphide</p>	<p>Removal from exposure will be adequate treatment for airborne concentrations less than 50 -70 ppm.</p> <p>At higher concentrations:</p> <p>Skin: If exposed skin becomes inflamed or blistered, wash affected areas with soap and water and obtain medical attention.</p> <p>Eye: Wash eye thoroughly with water. Obtain medical advice if redness or soreness persists.</p> <p>Inhalation: Remove from exposure. Keep warm and at rest. If unconscious, apply normal first aid measures including cardio-pulmonary resuscitation as necessary. Obtain medical attention urgently.</p>

<p>Medical Advice</p>	<p>If ingested, do not induce vomiting. Milk or liquid paraffin may be beneficial.</p> <p>Oil can be aspirated following regurgitation of stomach contents and can cause severe and potentially fatal chemical pneumonitis, which may require treatment with antibiotic and corticosteroid therapy . Because of the risk of aspiration, gastric lavage should be avoided - if deemed necessary undertake only after endotracheal intubation.</p> <p>Fuel injection through the skin from contact with high pressure/velocity fuel sprays are serious medical emergencies . Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Emergency surgical exploration and thorough cleansing of the wound and underlying tissues is necessary to minimise necrosis and tissue loss. Note: high pressure may force fluid considerable distances along tissue planes.</p> <p>Inhalation of hydrogen sulphide may cause central respiratory depression leading to coma and death. It is irritant to the respiratory tract causing chemical pneumonitis and pulmonary oedema. The onset of pulmonary oedema may be delayed for 24 -48 hours. Treat with oxygen and ventilation as appropriate. Administer bronchio-dilators if indicated and consider administration of corticosteroids. Keep casualty under medical surveillance for 48 hours in case pulmonary oedema develops.</p>
<p>Emergency Action</p>	<p>Fire:</p> <p>Extinguish using dry powder, foam, BCF, CO₂ or water fog (not water jet). Use breathing apparatus in enclosed spaces. Cool tanks and containers exposed to fire with water but ensure the water does not spread fire over a large area. Ensure an escape path is always available from any fire.</p> <p>Spillage:</p> <p>Isolate spillage from all ignition sources. Contain spillages and recover using sand, or non-combustible absorbent material for disposal according to local regulations or into port -approved disposal facilities. Do not wash into any drainage system and prevent entry into surface water sources.</p>
<p>Environmental Data</p>	<p>Moderately toxic to aquatic life. Fresh spillages may cause mortality of aquatic organisms and be harmful to wildlife, particularly birds. May lead to a reduction in amenity uses of water bodies and if allowed to enter aquatic sediments, contamination may be long -term. Advise appropriate authority of spillages into surface water or water courses.</p>
<p>Disposal</p>	<p>At sea, unusable oils should be sorted for eventual discharge into port-approved waste oil disposal facilities. (MARPOL regulations stipulate all major ports must provide facilities for the removal and disposal of unwanted hydrocarbon materials from all vessels). General disposal by incineration or use as land -fill at suitable tip under conditions approved by the local authorities.</p>

Labelling Classification	<p>EEC Labelling</p> <p>Indication of danger - Xn (harmful) Symbol - St Andrew's Cross (black on orange)</p> <p>Risk (R) Phrases:</p> <p>R40 - Possible risk of irreversible effects</p> <p>Safety (S) phrases:</p> <p>S43 - In case of fire use foam/dry powder/CO₂/halon. Never use water.</p> <p>S24 - Avoid contact with skin.</p> <p>S46 - If swallowed, seek medical advice immediately and show this container or label.</p> <p>- Do not induce vomiting. See manufacturer's literature.</p>
Transport Classifications	<p>IMCO: Class 3.3</p> <p>United Nations No: 1202 Class 3.3</p> <p>ADR/RID: 3,4</p> <p>IATA: 3 (-) Packing Group III</p>
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