



1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : Industrial Diesel Oil
Other names : IDO
Product Use : Marine Fuel

Company : **Kenya Petroleum Refineries Ltd,**
PO Box 90401 – 80100,
Mombasa, KENYA.

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2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration
Diesel	68476-30-2	100 %

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance and Odor: Amber colored liquid with hydrocarbon odour.

Health Hazards:

Acute: May cause skin irritation. Slightly irritating to the eye. May cause lung damage if swallowed. Do not induce vomiting. May cause aspiration pneumonitis.

Chronic: Prolonged and repeated skin contact may cause dermatitis due to defatting effect.

NFPA Rating (Health, Fire, Reactivity): 2, 2, 0

(Hazard Rating:Least - 0 ; Slight – 1;Moderate –2; High – 3; Extreme – 4).

Inhalation:

In applications where vapors (caused by high temperature) or mists (caused by mixing or spraying) are created, breathing may cause a mild burning sensation in the nose, throat and lungs (respiratory system) inhalation of high vapor concentrations may lead to central nervous system depression and chemical pneumonitis.

Eye Irritation:

May cause slight irritation of the eyes. If irritation occurs, a temporary burning sensation, minor redness, swelling, and/or blurred vision may result.

Skin Contact:

May be irritating to the skin causing a burning sensation, redness and/or swelling. Other adverse effects may not be expected from brief skin contact. Release during high pressure usage may



result in injection of oil into the skin causing local necrosis. The product is classified as category 3 Carcinogen, i.e. there is some evidence from appropriate animal studies that human exposure can result in the development of cancer, but this evidence is insufficient enough to place the substance in Category 2.

Ingestion:

This material may be harmful or fatal if swallowed. Ingestion may result in nausea and vomiting. If vomiting occurs, product may be aspirated into lungs leading to chemical pneumonitis.

4. FIRST AID MEASURES

Inhalation:

Move victim to fresh air and provide oxygen if breathing is difficult. Get medical attention. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

Skin Contact:

Remove contaminated clothing and wash before reuse or discard. Flush with large amounts of water for at least 15 minutes and follow by washing with soap if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

Eye Contact:

Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling occurs, transport to nearest medical facility for additional treatment.

Ingestion:

DO NOT induce vomiting. DO NOT take internally. In general no treatment is necessary unless large quantities are swallowed. However, get medical advice. Have victim rinse mouth out with water, and then drink sips of water to remove taste from mouth. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

First aid facilities

Eye wash fountains and safety showers should be available for emergency use

Advise to Doctor

Treat symptomatically.

If more than 2.0ml/kg body weight has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered, but care should be taken to prevent aspiration.



5. FIRE FIGHTING MEASURES

Fire hazards

CAUTION! Product is Combustible.

Isolate from sources of heat, naked flames, sparks and oxidizing materials. Take precautions against discharges of static electricity. Earth and bond all process equipment including tanks and drums. Ensure ventilation is adequate to prevent build up of explosive atmosphere. Vapors are heavier than air and may "travel" to low level area e.g. sumps, drains, etc and flashback.

Hazardous Combustion Products

Under fire conditions, this product may emit toxic and/or irritating fumes including carbon dioxide and carbon monoxide.

Extinguishing Media

Material will float and can be re-ignited on surface of water. Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO₂) to extinguish flames.

Do not use a direct stream of water.

Additional Advice

Clear fire area of all non-emergency personnel. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, Self-contained breathing apparatus. Cool surrounding equipment, fire-exposed containers, pipelines and structures with water. Container areas exposed to direct flame contact should be cooled with large quantities of water to prevent weakening of container structure.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures

CAUTION! Product is combustible. Eliminate all potential sources of ignition. Keep away from heat, naked flames, sparks and strong oxidising agents. Stop leak if safe to do so. Use explosion proof ventilation indoors and in laboratory settings. Handling equipment must be bonded and grounded to prevent sparking. Wear appropriate personal protective equipment. Contain residual material at affected sites to prevent material from entering sewers; ditches and waterways.

Clean Up Methods

For large liquid spills, contain the spills with earth or sand and take up by mechanical means such as vacuum trucks to a salvage tank. Do not flush away residues with water; retain as contaminated waste. For small spills, place inert non-combustible absorbent, sand or earth to soak up residue. Remove contaminated soil and dispose safely. If large quantities of the material enter the water ways, contact the national environmental protection authority

Additional Advice

Maritime spillages should be dealt with using Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex1 Regulation 26.



7. HANDLING AND STORAGE

General Precautions

CAUTION! COMBUSTIBLE. Avoid heat, open flames, including pilot lights, and strong oxidizing agents. Store in a well ventilated area. Use explosion-proof ventilation to prevent vapor accumulation. Ground all handling equipment to prevent sparking. Avoid contact with eyes, skin, clothing and foodstuffs. Wash thoroughly after handling.

Handling

Surfaces that are sufficiently hot may ignite liquid material.

Storage

Keep liquid and vapor away from heat, sparks and flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapor has dissipated. Use explosion-proof ventilation indoors and in laboratory settings.

Container Advice

Keep containers closed when not in use. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Material	Source	Type	ppm	mg/m3	Notation
Diesel fuel, as total hydrocarbons	ACGIH	TWA		100	
Diesel fuel, as total hydrocarbons	ACGIH	Notations			Skin; A3

Engineering controls

Special ventilation is not normally required due to the low volatility at normal temperatures. However, in the operation of certain equipment or at elevated temperatures, mists or vapor may be generated and exhaust ventilation should be provided to control airborne concentrations below the exposure guidelines/limits. Install eye washes and showers for emergency use.

Protective Clothing

Avoid contact with the skin and the eyes, and avoid breathing vapors or mists. Use chemical resistant gloves/gauntlets, boots, and apron. For spillage clean up use chemical resistant knee length boots. Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall buttoned at neck and wrist, with an integral hood, PVC.



Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level adequate to protect the worker's health, an approved respirator with a replaceable organic vapor filter must be worn. Types to be considered include supplied air respirator, air purifying respirator for organic vapors, and self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

Hand Protection

Materials should provide suitable chemical protection: impervious PVC, Neoprene or nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.

Eye Protection

Chemical splash goggles if contact is likely or safety glasses with side shields.

Skin Protection

Use skin protection which is chemically resistant to this material. Gloves, boots, suits and other items should preferably be Neoprene or Nitrile Rubber.

Work/Hygiene Practices

If contamination occurs, change clothing and discard internally contaminated gloves and footwear. Launder contaminated clothing before reuse. Ensure a high level of personal hygiene is maintained. Always wash hands before eating, drinking, smoking or using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and odour	: Amber colored liquid with hydrocarbon odour
Flash point	: 66 °C minimum.
Boiling point	: IBP : 150 °C; FBP : 400 °C
Vapour pressure	: < 0.5 kPa @ 40 °C
Specific gravity (Water =1)	: 0.915 maximum @ 20 °C
Water solubility	: Negligible.
Flammability limits	: LEL : 1.0 % v/v; UEL : 6.0 % v/v
Auto ignition temperature	: > 250 °C Approx
Vapour density (air =1)	: > 5 @ 15 °C
Viscosity	: 10 cSt maximum @ 40 °C

10. STABILITY AND REACTIVITY

Stability	: Stable under normal conditions of use.
Conditions to Avoid	: Heat and naked flames.
Materials to Avoid	: Strong oxidizing agents and acids.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependant on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other unidentified organic compounds will be evolved when this material undergoes combustion



11. TOXICOLOGICAL INFORMATION

LD 50 (Oral, rat) = 7500 mg/kg.

- Carcinogenicity and Mutagenicity** : Confirmed animal carcinogen with unknown relevance to humans.
- Irritancy** : This product is expected to be irritating to the skin, but is not expected to be a skin sensitizer.
- Chronic effects** : Prolonged or repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.

12. ECOLOGICAL INFORMATION

- Environmental Effects:** : May cause physical fouling of aquatic organisms.
- Biodegradability** : Not readily biodegradable. Potential for bioaccumulation

13. DISPOSAL CONSIDERATIONS

- Material Disposal** : Recover or recycle if possible. Contain spill with sand or earth or absorb with absorbent material. Place used absorbent in suitable sealed containers for disposal.
- Local Legislation** : Disposal in Kenya should be in accordance with the *Environmental Management and Coordination (Waste Management) Regulations, 2006*.

14. TRANSPORT INFORMATION

Identification number	UN 1202
Proper shipping name	Diesel Fuel
DG Class / Division	3 (Flammable Liquid)
Hazchem code	3 [Y]
Packing Group	III

15. REGULATORY INFORMATION

Reference is made to the Kenyan *Factories & Other Place of Work (Hazardous Substances) Regulations, 2007*. Other regulations may apply to this material.



16. OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity) : 2, 2, 0

MSDS Revisions : None.

MSDS Regulation : The contents in the MSDS are in fulfillment of the requirements of the *Factories & Other Place of Work (Hazardous Substances) Regulations, 2007*.

Disclaimer: : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.