

SAFETY DATA SHEET

HEAVY CRUDE OIL



1. Identification of Substance or Mixture and of the Supplier

Material Name : Heavy Crude Oil
Recommended Use / : Refinery feedstock
Restrictions of Use : Use in accordance with this SDS only
Suppliers Details : **Attock Refinery Limited**
 P.O. Refinery, Morgah, Rawalpindi, Pakistan
 Telephone/Fax Number
 Tel: +92-51-5487041-45
 Fax: 92-51-5487093-4
 E-mail: info@arl.com.pk
Emergency Phone : +92-51-5487041
Number

2. Hazard Identification

GHS Classification : **Flammable Liquids, Category 1**
Aspiration Hazard, Category 1
Carcinogenicity, Category 1
Eye Damage/Irritation, Category 2A
Germ Cell Mutagenicity, Category 1
Skin Corrosion/Irritation, Category 2
Toxic to Reproduction, Category 2

**GHS Label Elements &
 Precautionary
 Statements**



: Signal Word
 Danger

Hazard Statement (s)

H201 Obtain special instructions before use
H202 Do not handle until all safety precautions have been read
H210 Keep away from heat/sparks/open flames/hot surfaces
H233 Keep container tightly closed
H240 Ground/bond container and receiving equipment
H304 May be fatal if swallowed and enters airways

- H315** Causes skin irritation
- H319** Causes eye irritation
- H335** May cause respiratory irritation
- H336** Specific target organ toxicity (single exposure)
- H340** May cause genetic defects
- H350** May cause cancer
- H360** Possible risk of harm to the unborn child
- H373** Specific target organ toxicity (repeated exposure)
- H411** Toxic to aquatic life with long lasting effects

Hazards Not Otherwise Classified

May contain or release poisonous hydrogen sulfide gas

Precautionary Statement (s) – Prevention

- P102** Keep out of reach of children
- P201** Obtain special instructions before use
- P202** Do not handle until all safety precautions have been read
- P210** Keep away from source of ignition, hot surface and open flames.
- P233** Keep container tightly closed
- P240** Ground/bond container and receiving equipment.
- P241** Use explosion-proof electrical/ ventilating/ lighting/ equipment
- P242** Use only non-sparking tools.
- P243** Take precautionary measures against static discharge.
- P261** Avoid breathing dust/fume/gas/mist/vapours/spray
- P264** Wash contaminated skin thoroughly after handling.
- P271** Use only outdoors or in a well-ventilated area
- P273** Avoid release to the environment
- P280** Wear protective gloves/protective clothing/eye protection/face protection
- P281** Use personal protective equipment as required

Precautionary Statement (s) - Response

- P301+P310** IF SWALLOWED: Immediately call doctor/ physician.
- P302+P352** IF ON SKIN: Wash with plenty of soap and water
- P303+P361+P353** IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313** IF exposed or concerned: Get medical advice/attention.
- P312** Call a POISON CENTER or doctor/physician if you feel unwell

P331 Do NOT induce vomiting.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370+P378 In case of fire: Use foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only for extinction.

P391 Collect spillage

Precautionary Statement (s) – Storage

P405 Store locked up

P403+P233+P235 Store in a well-ventilated place. Keep cool.

Precautionary Statement (s) – Disposal

P501 Dispose of contents/container to approved facility

3. Composition / Information on Ingredients

Chemical Identity : A highly complex mixture of paraffinic, cycloparaffinic (naphthenic) and aromatic hydrocarbons, containing a low percentage of sulfur and trace amounts of nitrogen and oxygen compounds.

Common Name : Crude Oil

Composition Information

Name	CAS Number	Percent (%)
Crude Oil	8002-05-9	≈100
Benzene	71-43-2	<1.0

4. First-Aid Measures

Inhalation : Move the exposed person to fresh air. If not breathing, clear airways and give artificial respiration. If breathing is difficult, qualified personnel should administer humidified oxygen. Seek medical attention if breathing difficulties continue.

Skin : Remove contaminated shoes and clothing, and flush affected areas with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, clean affected area thoroughly with mild soap and water.
Seek medical attention if tissue appears damaged or if pain or irritation persists. Launder or discard contaminated clothing.

Eye Contact : Flush eyes with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye. Remove contact lenses, if worn, after initial flushing. Do not use eye ointment. Seek medical attention.

Ingestion : Aspiration hazard. Do not induce vomiting or give anything by mouth because the material can enter the lungs and cause severe lung damage. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Most Important Symptoms and Effects **Acute:** Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue
Delayed: Dry skin and possible irritation with repeated or prolonged exposure

Potential Chronic Health Effects : Chronic effects of overexposure are similar to acute effects including central nervous system (CNS) effects and CNS depression. Effects may also include irritation of the digestive tract, irritation of the respiratory tract, nausea, vomiting and skin dermatitis.

5. Fire Fighting Measures

Hazchem Code : 3WE

Suitable Extinguishing Media : Small Fire: Dry chemical, CO2, water spray or regular foam.
Large Fire: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk.

Unsuitable Extinguishing Media : Don't use water in jet

Hazards from Combustion Products : Oxides of carbon. Oxides of sulphur.

Specific Hazards during Fire Fighting : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Precautions in connection with Fire : Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures : Do not touch or walk through spilled material. Use personal protection recommended in Section 8. Don full-face, positive pressure, self-contained breathing apparatus.

Environmental Precautions : Prevent entry into waterways, sewers, basements or confined areas.

Methods and Materials for Containment and Cleaning up : Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors.

Methods and materials for containment and cleaning up **Small spill;** Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill; Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, waterways, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling & Storage

Safe Handling : Put on appropriate personal protective equipment. Avoid exposure, obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures

against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.

Safe Storage Conditions : Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up. Store away from incompatible materials. Keep out of the reach of children. Headspace in storage containers may contain toxic hydrogen sulphide gas.

Recommended Storage Materials : Structural materials and lighting and ventilation systems should be corrosion resistant. For containers, or container linings use mild steel, stainless steel. Aluminum may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product.

8. Exposure Control / Personnel Protection

Occupational Exposure Limit Values

Component	CAS No	Value Type (Form of Exposure)	Control Parameters / Permissible Concentration	Basis
Crude Oil	8002-05-9	TWA	400 ppm 8 hours	OSHA PEL
Benzene	71-43-2	TWA	1 ppm 8 hours	OSHA PEL
H2S	7783-06-4	TWA	10 ppm 8 hours	OSHA PEL

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

Appropriate Engineering Controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Respiratory Protection : If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists.

Eye Protection : Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations.

Hand Protection : Wear gloves of impervious material such as nitrile gloves (Breakthrough time of > 240 minutes) neoprene, PVC gloves. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.

Body Protection : Clean clothing or protective clothing should be worn, preferably with an apron.

Hygiene Measures : Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical & Chemical Properties

Physical State : Liquid
Flammability : Flammable
Auto-ignition Temp : >260°C
Color : Black
Odor : Petroleum
Initial Boiling Point : >25°C
Specific Gravity @ 15.6°C/ 15.6°C : 0.870 -0.960
Vapor Pressure, at 37.8°C : 2 psi
Flash point : Not available
Viscosity @40°C : 15 cSt
Benzene : <1.0 %

10. Stability & Reactivity

Chemical Stability : Stable under normal conditions of storage and handling
Conditions to Avoid : Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

Incompatible Products : Keep away from strong oxidizers.

Hazardous Decomposition Products : Under normal conditions of storage and use, hazardous decomposition products should not be produced

11. Toxicological Information

Toxicology Information	: Acute Toxicity – Oral LD50 :(Rat) : >5000 mg/kg Acute Toxicity – Inhalation LD50 :(Rat) : >5 mg/l / 4h Acute Toxicity – Dermal LD50 :(Rabbit) : >2000 mg/kg
Ingestion	: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.
Inhalation	: May cause drowsiness or dizziness. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. Excessive inhalation may cause headache, dizziness, confusion, loss of appetite and/or loss of consciousness. This product may contain small amounts of Hydrogen sulphide which may accumulate in confined spaces. Inhalation of Hydrogen sulphide may cause loss of sense of smell, major irritation of the respiratory tract, headache, nausea, vomiting, dizziness, and fluid buildup in the lungs (pulmonary edema), which can be fatal.
Skin	: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.
Eye	: May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.
Respiratory Sensitization	: Not available
Skin Sensitization	: Not available
Germ cell Mutagenicity	: May cause genetic defects.
Carcinogenicity	: May cause cancer. Risk of cancer depends on duration and level of exposure.
Reproductive Toxicity	: Suspected of damaging fertility or the unborn child. Studies exist which report a link to crude oil and reproductive effects including menstrual disorders.
Aspiration Respiratory Organs Hazard	: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

12. Ecological Information

Ecotoxicity	: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Biodegradability Persistence/ Degradability	: Most crude oils are not regarded as readily biodegradable. Most of the nonvolatile constituents are inherently biodegradable. Some of the highest molecular weight components are persistent in water. The individual hydrocarbon components of material are differentially soluble in water with aromatic hydrocarbons tending to be more water soluble than aliphatic hydrocarbons
Mobility	: Spillages may penetrate the soil causing ground water contamination.
Other Ecological Information	: Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. Disposal Considerations

Dispose of waste according to applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Advice flammable nature. Empty containers may contain flammable residues. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected.

14. Transport Information

Transport Information	: Dangerous goods of Class 3 (Flammable Liquid) are incompatible in a placard load with any of the following: Class 1, Explosives Division 2.1, Flammable Gases, (Division 2.1 and Class 3 are incompatible in transport if both are in tanks or other receptacles with a capacity individually exceeding 500 L.) Division 2.3, Toxic Gases Division 4.2 Spontaneously Combustible Substances Division 5.1 Oxidizing Agents and Division 5.2, Organic Peroxides Class 6 Toxic or Infectious Substances (where the flammable liquid is nitromethane) Class 7: Radioactive materials unless specifically exempted
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UN proper shipping name : PETROLEUM CRUDE OIL

U.N. Number : 1267

Packing Group : II

15. Regulatory Information

Classified as Hazardous according to the Globally Harmonized System of classification and labeling of chemicals (GHS) including Work, Health and Safety regulations.

OSHA Hazards : Flammable liquid, highly toxic by ingestion, Moderate skin irritant, severe eye irritant, Carcinogen

16. Other Information including Information on Preparation and revision of the SDS

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process.