

MATERIAL SAFETY DATA SHEET



Pakistan State Oil

1. PRODUCT IDENTIFICATION AND COMPANY DETAILS

PSO HYDRAULIC BRAKE FLUID HD DOT 3 & DOT 4

MSDS NO.: 005-001
PRODUCT CODE: 4046002 & 4046102
APPLICATION: Brake Fluid
MANUFACTURER/SUPPLIER: **Pakistan State Oil Company Limited**
Lubricants Technical Services,
Lubricants and Chemicals Department
7th Floor, PSO House,
Khayaban-e-Iqbal, Clifton,
Karachi, Pakistan.
Tel. 92 21 99203866
EMERGENCY TELEPHONE NUMBER: 0800-03000
PRODUCT TECHNICAL INFORMATION: lubricants.technical@psopk.com
REVISION NO: 06
REVISION DATE: March 28, 2024

2. HAZARDS IDENTIFICATION

This material is not classified as hazardous according to the Globally Harmonized System (GHS) of classification and labelling of chemicals, but should be handled in accordance with good industrial hygiene and safety practices.

HAZARD STATEMENTS

Physical Hazards

Not classified as physical hazard according to classifications, labelling and packaging (CLP) criteria.

Health Hazard

Not classified as health hazard according to classifications, labelling and packaging (CLP) criteria.

Environmental Hazard

Not classified as environmental hazard according to classifications, labelling and packaging criteria.

GHS PRECAUTIONARY STATEMENTS

P102: Keep out of reach of children.
P232: Protect from moisture.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P262: Do not get in eyes, on skin, or on clothing.
P273: Avoid release to the environment.
P281: Use personal protective equipment as required.

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GHS RESPONSE STATEMENTS

- P301: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Seek medical treatment.
- P302: IF ON SKIN: Gently wash with plenty of soap and water. If irritation occurs, get medical advice/attention.
- P304: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P306: IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

OTHER HAZARDS

Prolonged exposure with skin might result in potential health risks, which may vary from person to person. Used engine oil may contain hazardous components which have the potential to cause severe skin disease/s.

See Toxicological Information, section 11 of this Material Safety Data Sheet.

3. COMPOSITION/INFORMATION OF INGREDIENTS

This material is defined as mixture.

Name	CAS No.
2-(2-Methoxyethoxy) ethanol	111-77-3
Triethylene glycol monobutyl ether	143-22-6
Polyethylene glycol	25322-68-3
2-(2-Butoxyethoxy) ethanol	112-34-5
Diethylene glycol	111-46-6
2-(2-Ethoxyethoxy) ethanol	111-90-0

4. FIRST AID MEASURES

- IN CASE OF CONTACT:** Wash eyes thoroughly with plenty of water, ensuring that eyelids are kept open. Seek medical advice if any pain or irritation develops or persists.
- IN CASE OF SKIN CONTACT:** Wash skin thoroughly with plenty of soap and water. If clothing is contaminated then immediately remove contaminated clothing and shoes. If product is in direct contact with any exposed wound then the individual should immediately seek medical attention.
- IN CASE OF INGESTION:** If ingested, do not induce vomiting. Seek immediate medical advice.
- IN CASE OF INHALATION:** Exposure to fumes or vapors may cause irritation in nose or throat; move the affected person to fresh air. If coughing or respiratory discomfort occurs then seek medical attention.

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NOTE TO PHYSICIAN: Treat symptomatically.

5. FIRE FIGHTING MEASURES

APPROPRIATE EXTINGUISHING MEDIA

- Use foam, Dry Chemical Powder, Carbon dioxide or water fog.

INAPPROPRIATE EXTINGUISHING MEDIA

- Do not use water jets.

FIRE FIGHTING INSTRUCTIONS

- In case of fire, evacuate from the area immediately.
- Cordon off area to prevent spreading of exposed material.
- In case of fires in confined spaces, only trained personnel should deal with fires using appropriate breathing apparatus.
- Water may be used to cool nearby heat exposed areas/objects/packages.
- Avoid spraying directly on storage containers to avoid risk of boil-over.

HAZARDOUS COMBUSTION PRODUCTS

- As a result of combustion, carbon dioxide, carbon monoxide, airborne solids, liquids, gases, smoke, fumes, oxides of Sulfur, Nitrogen, Phosphorus and Zinc may evolve.

FLASH POINT: >110°C (ASTM D-92)

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION

- Avoid contact with spilled materials. In case of contact with spilled material follow appropriate measures as mentioned in section 4.

SPILLED MATERIAL CONTAMINATION

- Spilled material may make surfaces slippery.
- Protect drains from possible spills to minimize contamination by using sand or appropriate barriers.
- Do not wash-down product into drainage system.
- In case of large spills contact the appropriate authorities.
- In the event of spillage of water, prevent the spread of product by use of suitable barrier equipment. Recover product from the surface.

ENVIRONMENTAL PROTECTION

- Contain and recover spilled material using sand or other suitable inert absorbent material. It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage, which may be reasonably anticipated.

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- Place contaminated materials in disposable containers and dispose of in an environment friendly manner.
- Protect environmentally sensitive areas and water supplies.

7. HANDLING AND STORAGE

SAFE HANDLING ADVICE

- Avoid contact with eyes. If splashing is expected to happen wear a full face shield or goggles as suitable.
- Avoid frequent or prolonged skin contact with fresh or used lubricant. Wash hands thoroughly and immediately right after contact.
- Maintain proper ventilation if there is a risk of inhalation of vapors, mists, etc.
- Use appropriate safety shoes during drum handling.
- Maintain high standards of personal hygiene, good working practices and plant cleanliness at all times.
- For cleaning use disposable cloths and discard them when soiled. Do not put soiled cloths into pockets.

ELECTROSTATIC HAZARD

- To minimize hazard of electrostatic charge during handling of bulk product, ensure proper bonding and grounding to prevent the built-up static charges that can cause sparking of sufficient magnitude to ignite the atmosphere in a hazardous location.

STORAGE ADVICE

- Lubricant packages should be stored under cover with appropriate ventilation.
- Store away from heat and ignition sources.
- Wooden planks should be used to keep the drums and packages clear of the ground to prevent rusting and damage.
- Use properly labelled packages to ensure correct usage of the product.
- Keep lubricant containers tightly closed to avoid contamination.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

EXPOSURE LIMITS/ENGINEERING CONTROLS

- This material is not classified as hazardous according to the Globally Harmonized System (GHS) of classification and labelling of chemicals, but should be handled in accordance with applicable regulations.
- Consider potential exposure limits, work activities and other materials when selecting appropriate Personal Protective Equipment (PPEs) and structuring engineering controls.
- Ensure proper ventilation.

PERSONAL PROTECTIVE EQUIPMENT

Selection of PPEs is dependent on multiple factors such as working conditions, exposure limits, applications, handling practices, concentration and ventilation.

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Eye/Face Protection: Use protective eye wear and/or face shield to protect eyes and face in case of splashes while handling.

Hand Protection: While handling product, use appropriate gloves such as nitrile rubber, PVC or neoprene.

Skin Protection: If skin contact is expected, wear chemical resistant protective clothing. Protective clothing should be regularly kept dry and cleaned. Change contaminated clothing as soon as reasonably possible. Wash any contaminated underlying skin with soap and water.

Respiratory Protection: Under normal conditions of application, no respiratory protection is required. In case of exposure of workers with high concentration of airborne contaminants then use of appropriate combination of respiratory mask and filter meeting relevant legislations is recommended.

ENVIRONMENTAL CONTROLS

Refer appropriate environmental regulations to limit discharge of product in air, water and soil. Local guidelines for emissions must be adhered with, when discharging into air to protect environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

The typical characteristics mentioned below are based on current mean values and do not constitute as specification.

PROPERTIES	TYPICAL RESULTS	
	DOT 3	DOT 4
State	Liquid	Liquid
Appearance	Homogenous, transparent & free from sediment	Homogenous, transparent & free from sediment
Color	Palm yellow	Palm yellow
Odor	Mild	Mild
pH	7.8	7.8
Dry Equilibrium Reflux Boiling Point, °C	238	242
Wet Equilibrium Reflux Boiling Point, °C	148	162
Kinematic Viscosity @ 100°C, cSt	1.7	1.7
Kinematic Viscosity @ -40°C, cSt	1510	1650
Flash Point (COC), °C	110	120

10. STABILITY & REACTIVITY

STABILITY

Material is stable under normal conditions.

REACTIVITY

Possibility of reaction with strong oxidizing agents and acids.

HAZARDOUS DECOMPOSITION

Material does not decompose at ambient conditions.

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CONDITIONS TO AVOID

Avoid exposure from excessive heat, direct sunlight and sources of ignition.

INCOMPATIBLE MATERIALS

Strong oxidizing agents and acids.

11. TOXICOLOGICAL INFORMATION

POSSIBILITY OF EXPOSURE

Exposure can occur via skin, eye, inhalation or accidental ingestion of the product.

INHALATION

Acute Toxicity: Less toxic based on assessment of the components. At normal ambient temperature this product will be unlikely to present an inhalation hazard because of its low volatility.

Irritation: Negligible hazard at ambient conditions. May cause irritation to eyes, nose and throat due to exposure from vapor, mists or fumes.

INGESTION

Acute Toxicity: Less toxic based on assessment of the components.

EYE CONTACT

Slightly irritating to the eye.

SKIN CONTACT

Unlikely to bring any harm to the skin on short-term or infrequent contact but continued or repeated exposure may cause inflammation/irritation to skin.

SENSITISATION

Based on available data, product is not a skin sensitizer.

GERM CELL MUTAGENICITY

Non-Mutagenic.

CARCINOGENICITY

Based on available data product is classified as non-carcinogenic.

REPRODUCTIVE TOXICITY

Based on available data product is not found to be reproductive toxicant.

SUPPLEMENTAL INFORMATION

Combustion by-products resulting from the process of internal combustion engines contaminate engine oils during use. Used engine oil may contain hazardous materials which have potential to cause skin cancer. Therefore, frequent or prolonged contact with all types and brands of used engine oil must be avoided and a high standard of personal hygiene should be maintained.

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12. ECOLOGICAL INFORMATION

The information provided below is representative of the product, similar products and product as a whole. This does not indicate of impact of individual components.

MOBILITY

Spillages may enter into the soil causing deterioration of soil quality and contamination of ground water.

BIODEGRADABILITY

Major components are inherently biodegradable. It is unlikely that the product will biodegrade easily.

AQUATIC TOXICITY

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

BIO-ACCUMULATIVE POTENTIAL

Although the base oil component has the potential to bioaccumulate, its physical characteristics or metabolism may limit its bioavailability or diminish its bioconcentration.

13. DISPOSAL CONSIDERATIONS

- Where possible prefer recovering/recycling the material.
- Dispose of material via an authorized person/licensed waste disposal contractor in accordance with national and local laws & regulations.
- Contamination of soil, ground water and environment through waste product is prohibited.

EMPTY PRODUCT CONTAINERS

Empty product containers should be properly drained and appropriately stored till reconditioned or disposed. Empty containers should be properly recycled, recovered or disposed of via licensed contractor and as per applicable government regulations.

14. TRANSPORT INFORMATION

ADR (Accord Dangereux Router)

Not classified as hazardous material for land transport.

RID (Reglement International concernant le transport des marchandises Dangereuses par chemin de fer)

Not classified as hazardous material for transportation via railroad.

IATA-DGR (International Air Transportation Association-Dangerous Goods Regulation)

Not classified as hazardous material for shipment by air.

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IMO (International Maritime Organization)

- Not applicable for material as supplied. MARPOL 73/78 Annex I is applicable for shipment of bulk product via sea.
- Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code. Not applicable for material as supplied.

15. REGULATORY INFORMATION

The regulatory data is not meant to inclusive of all components. This material may be subject to additional rules.

16. OTHER INFORMATION

COMPILED BY:

Lubricant Technical Services-L&C
Pakistan State Oil Co. Ltd.
7th Floor, Khayaban-e-Iqbal, Clifton,
Karachi-75600.

The data and the health, safety and environmental information mentioned are considered to be accurate as of the date specified above. We disclaim all liability for the use of this information because it may be utilized in circumstances outside of our control, that we may not be familiar with, and because information made available after this date may indicate that the information has changed. The information is provided with the understanding that the recipient will assess whether or not the product is appropriate for their specific needs.

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