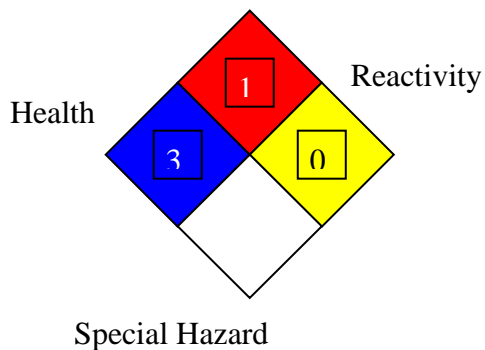




## Jordan Petroleum Refinery Company Material Safety Data Sheet Hydraulic Oil

NFPA: Flammability

JPRC LUB- 4



HMIS III:

Flammability	1
Health	3
Reactivity	0

### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name:	Hydraulic Oil (22, 32, 37, 46, 68, 100)
MSDS Number:	JPRC LUB-4
Product Use Description:	For use in hydraulic power transmission and control systems, that requires high anti-wear and anti-oxidation fluids.
Company	Jordan Petroleum Refinery Amman – Jordan. TEL: + 962 6 4630151 or 4657600 FAX: + 962 6 4657934 or 4657939 P.O.BOX: 3396 Amman 11181 – Jordan P.O.BOX: 1079 Amman 11118 – Jordan Website: <a href="http://www.jopetrol.com.jo">http://www.jopetrol.com.jo</a> E-mail: <a href="mailto:addewan@jopetrol.com.jo">addewan@jopetrol.com.jo</a>

## SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS.

COMPOSITION :	Base oils
	DI package
	VII

## SECTION 3. HAZARDS IDENTIFICATION

Hazardous identification

US OSHA hazard communication  
standard for SN (500,150, 100), BS 150:

Base oils assessed in accordance with  
OSHA 29 CFR 1910.1200 & determined  
to be hazardous

Effects of over exposure: no significant  
effects expected.

Emergency response data: black semi –  
solid. Dot ERG NO.- NA

## SECTION 4. FIRST AID MEASURES

First Aid Measures:

Eye Contact

Rinse cautiously with water for several  
minutes. Remove contact lenses, if  
present and easy to do. Continue rinsing.  
Immediately call a poison center or  
doctor.

Skin contact

Wash contact areas with soap & water.  
Remove contaminated clothing.  
Get medical attention if irritation  
developed. Launder contaminated  
clothing before reuse and discard leather  
articles saturated with the material.

Inhalation

Remove exposed person to fresh air if  
adverse effects are observed. If breathing  
is labored, administer oxygen. If  
breathing has stopped, apply artificial  
respiration. If irritation persists or if toxic  
symptoms are observed, get medical  
attention.

Ingestion

Do not induce vomiting. If conscious,  
give 2 glasses of water. Get immediate  
medical attention.

## SECTION 5. FIRE-FIGHTING MEASURES

Fire- Fighting Measure

Extinguishing media:

Carbon dioxide, foam, dry chemical, and  
water fog.

Special fire fighting procedures:

Water or foam may cause frothing. Use  
water to keep fire exposed containers  
cool. Water spray may be used to flush  
spills away from exposure. Prevent runoff  
from fire control or dilution from entering  
streams, sewers, or drinking water  
supply.

Special protective equipment:

For fires in enclosed areas, fire fighters  
must use self-contained breathing  
apparatus (SCBA) and full turnout gear.

Unusual fire and explosion hazards	Storage tank headspace may contain flammable atmosphere.
NFPA hazard ID	Flammable limits- LEL: NA, UEL: NA. Health : 3, Flammability : 1, Reactivity : 0
Hazardous decomposition products	Carbon monoxide, carbon dioxide, some metallic oxides.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures	<p>This material is slippery and might cause a traffic accident. If spilled on road, it must be covered with sand immediately. In the event of a spill or leak or accident, persons not wearing protective equipment &amp; clothing should be restricted from contaminated areas until clean up has been completed.</p> <p>The following steps should be undertaken following a spill or leak:</p> <ol style="list-style-type: none"> <li>1- Notify safety personnel.</li> <li>2- Remove all sources of heat and ignition.</li> <li>3- Ventilate potentially explosive atmospheres.</li> <li>4- Do not touch the spilled material; stop the leak if it is possible to do so without risk.</li> <li>5- Use water spray to reduce vapors; do not get water inside container. Do not flush waste to sewers or open waterways.</li> <li>6- For liquid spills, cover with sand and then remove for later disposal.</li> <li>7- Prevent spills from entering storm sewers or drains.</li> </ol>
Personal precautions	Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (see section 8). Follow all fire-fighting procedures.

## SECTION 7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Store away from strong oxidizing agents or combustible material.
IMO Class>	not regulated as dangerous
UN	Not applicable

## Transportation

### ADR

This material is not classified as dangerous under ADR regulations.

### RID

This material is not classified as dangerous under RID regulations.

### IMDG

This material is not classified as dangerous under IMDG regulations.

### IATA (Country variations may apply)

This material is not classified as dangerous under IATA regulations

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure controls/ personal protection

#### Respiratory protection

Use appropriate respiratory protection if there is the potential to exceed the exposure limit

#### Skin and body

Use chemical resistant apron and / or other clothing to protect against hot liquid & to avoid skin contact

#### Hands

Use nitrile or neoprene gloves.

#### Eyes

Safety goggles are considered minimum protection. goggles with a face shield may be necessary depending on quantity of material & conditions of yours.

#### Engineering controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limits value.

#### Occupational exposure limits

Exposure limit of SN 500, SN150 for oil mist: 5.00 mg/m<sup>3</sup>

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Appearance:	Bright and Clear,
Flash point for 22(COC):	188 ° C
Flash point for 32(COC):	205 ° C
Flash point for 37(COC):	220 ° C
Flash point for 46(COC):	230 ° C
Flash point for 68(COC):	240 ° C
Flash point for 100(COC):	250 ° C
Pour Point for 22:	-30 ° C
Pour Point for 32:	-30 ° C
Pour Point for 37:	-30 ° C

Pour Point for 46:	-30 ° C
Pour Point for 68:	-30 ° C
Pour Point for 100:	-24 ° C
Density for 22:	0.8704 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
Density for 32:	0.8718 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
Density for 37:	0.8791 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
Density for 46:	0.8821 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
Density for 68:	0.8843 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
Density for 100:	0.8886 g/cm <sup>3</sup> @ 15 ° C Test Method: ASTM D 1298
VI for 22:	104
VI for 32:	113
VI for 37:	103
VI for 46:	102
VI for 68:	101
VI for 100:	101
Kinematic viscosity for 22:	22 cSt @ 40 ° C Test Method: ASTM D 445.
Kinematic viscosity for 32:	32 cSt @ 40 ° C Test Method: ASTM D 445.
Kinematic viscosity for 37:	37 cSt @ 40 ° C Test Method: ASTM D 445.
Kinematic viscosity for 46:	46 cSt @ 40 ° C Test Method: ASTM D 445.
Kinematic viscosity for 68:	68 cSt @ 40 ° C Test Method: ASTM D 445.
Kinematic viscosity for 100:	100 cSt @ 40 ° C Test Method: ASTM D 445.

## SECTION 10. STABILITY AND REACTIVITY

Stability:	The product is stable.
Material to avoid:	Strong oxidizing and reducing agents.
Condition to avoid:	High temperatures, sparks, and open flames.
Hazardous decomposition products:	Sulphur oxides. Hydrogen sulphide. Carbon monoxide.

## SECTION 11. TOXICOLOGICAL INFORMATION

Routes of Entry	Skin, Eyes, Ingestion, and Inhalation
Inhalation	Irritating to respiratory system. May cause nose, throat and lung irritation.
Ingestion	Not determined.
Skin contact	Skin irritant. Repeated or prolonged skin contact as from clothing wet with material may cause dermatitis. Symptoms may include redness, edema, drying, and

Eye contact	cracking of the skin.
LD <sub>50</sub>	Weak to moderate eye irritant. >2000 mg/kg

## SECTION 12. ECOLOGICAL INFORMATION

Environmental Fate and effects: (SN 500, SN 150, SN 100, BS 150)	This product is expected to be inherently biodegradable. There is no evidence to suggest bioaccumulation will occur. It is not expected to be toxic to aquatic organisms. Accidental spillage may lead to penetration in the soil and groundwater. However, there is no evidence that this would cause adverse ecological effects.
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## SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal	Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may be limited pursuant to the resource conservation and recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.
RCRA Information	The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40CFR, Part 261D), nor is not formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosively, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

## SECTION 14. REGULATORY INFORMATION

Risk Phrases:	Not Classified. R22-Harmful if swallowed. R23/24/25-Toxic by inhalation, Toxic in contact with skin, Toxic if swallowed. R33-Danger of cumulative effect. R36-Irritating to eyes. R38-Irritating to skin. R43-May cause sensitization by skin contact. R50/53-Very toxic to aquatic organisms, may cause long-term adverse effects in
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the aquatic environment.

R51/53-Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R52- Harmful to aquatic organisms.

R62-Possible risk of impaired fertility.

R65-Harmful: may cause lung damage if swallowed.

## SECTION 15. OTHER INFORMATION

LD<sub>50</sub>

Lethal Dose (mg/kg)

PEL

Permissible Exposure Limits

NFPA

National Fire Protection Association:

PPE

Personal Protective Equipment

SCBA

Self – Contained Breathing Apparatus

TWA

Time – Weighted Average.

OSHA

Occupational Safety And Health Administration

ACGIH

American Conference of

Governmental Industrial Hygienists

## R-phrases

- .R1 – Explosive when dry
- .R2 – Risk of explosion by shock, friction, fire or other sources of ignition
- .R3 – Extreme risk of explosion by shock, friction, fire or other sources of ignition
- .R4 – Forms very sensitive explosive metallic compounds
- .R5 – Heating may cause an explosion
- .R6 – Explosive with or without contact with air
- .R7 – May cause fire
- .R8 – Contact with combustible material may cause fire
- .R9 – Explosive when mixed with combustible material
- .R10 – Flammable
- .R11 – Highly flammable
- .R12 – Extremely flammable
- .R14 – Reacts violently with water
- .R15 – Contact with water liberates extremely flammable gases
- .R16 – Explosive when mixed with oxidizing substances
- .R17 – Spontaneously flammable in air
- .R18 – In use, may form flammable/explosive vapour-air mixture
- .R19 – May form explosive peroxides
- .R20 – Harmful by inhalation
- .R21 – Harmful in contact with skin
- .R22 – Harmful if swallowed
- .R23 – Toxic by inhalation
- .R24 – Toxic in contact with skin
- .R25 – Toxic if swallowed
- .R26 – Very toxic by inhalation
- .R27 – Very toxic in contact with skin
- .R28 – Very toxic if swallowed
- .R29 – Contact with water liberates toxic gas
- .R30 – Can become highly flammable in use
- .R31 – Contact with acids liberates toxic gas
- .R32 – Contact with acids liberates very toxic gas
- .R33 – Danger of cumulative effects
- .R34 – Causes burns
- .R35 – Causes severe burns
- .R36 – Irritating to eyes
- .R37 – Irritating to respiratory system
- .R38 – Irritating to skin
- .R39 – Danger of very serious irreversible effects
- .R40 – Limited evidence of a carcinogenic effect
- .R41 – Risk of serious damage to eyes
- .R42 – May cause sensitization by inhalation
- .R43 – May cause sensitisation by skin contact
- .R44 – Risk of explosion if heated under confinement



.R45 – May cause cancer  
.R46 – May cause heritable genetic damage  
.R48 – Danger of serious damage to health by prolonged exposure  
.R49 – May cause cancer by inhalation  
.R50 – Very toxic to aquatic organisms  
.R51 – Toxic to aquatic organisms  
.R52 – Harmful to aquatic organisms  
.R53 – May cause long-term adverse effects in the aquatic environment  
.R54 – Toxic to flora  
.R55 – Toxic to fauna  
.R56 – Toxic to soil organisms  
.R57 – Toxic to bees  
.R58 – May cause long-term adverse effects in the environment  
.R59 – Dangerous for the ozone layer  
.R60 – May impair fertility  
.R61 – May cause harm to the unborn child  
.R62 – Possible risk of impaired fertility  
.R63 – Possible risk of harm to the unborn child  
.R64 – May cause harm to breastfed babies  
.R65 – Harmful: may cause lung damage if swallowed  
.R66 – Repeated exposure may cause skin dryness or cracking  
.R67 – Vapours may cause drowsiness and dizziness  
.R68 – Possible risk of irreversible effects  
.R 14/15 – Reacts violently with water, liberating extremely flammable gases  
.R 15/29 – Contact with water liberates toxic, extremely flammable gas  
.R 20/21 – Harmful by inhalation and in contact with skin  
.R 20/22 – Harmful by inhalation and if swallowed  
.R 21/22 – Harmful in contact with skin and if swallowed  
.R 20/21/22 – Harmful by inhalation, in contact with skin and if swallowed  
.R 23/24 – Toxic by inhalation and in contact with skin  
.R 24/25 – Toxic in contact with skin and if swallowed  
.R 23/25 – Toxic by inhalation and if swallowed  
.R 23/24/25 – Toxic by inhalation, in contact with skin and if swallowed  
.R 26/27 – Very toxic by inhalation and in contact with skin  
.R 26/28 – Very toxic by inhalation and if swallowed  
.R 26/27/28 – Very toxic by inhalation, in contact with skin and if swallowed  
.R 27/28 – Very toxic in contact with skin and if swallowed  
.R 36/37 – Irritating to eyes and respiratory system  
.R 36/38 – Irritating to eyes and skin  
.R 37/38 – Irritating to respiratory system and skin  
.R 36/37/38 – Irritating to eyes, respiratory system and skin  
.R 39/23 – Toxic: danger of very serious irreversible effects through inhalation  
.R 39/24 – Toxic: danger of very serious irreversible effects in contact with skin  
.R 39/25 – Toxic: danger of very serious irreversible effects if swallowed  
R 39/32/24 – Toxic: danger of very serious irreversible effects through inhalation and  
.in contact with skin  
R 39/23/25 – Toxic: danger of very serious irreversible effects through inhalation and  
.if swallowed  
R 39/24/25 – Toxic: danger of very serious irreversible effects in contact with skin  
.and if swallowed  
R 39/23/24/25 – Toxic: danger of very serious irreversible effects through inhalation,  
.in contact with skin and if swallowed  
.R 39/26 – Very toxic: danger of very serious irreversible effects through inhalation

R 39/26/27 – Very toxic: danger of very serious irreversible effects through inhalation and in contact with skin  
.R 39/27 – Very toxic: danger of very serious irreversible effects in contact with skin  
.R 39/28 – Very toxic: danger of very serious irreversible effects if swallowed  
R 39/26/28 – Very toxic: danger of very serious irreversible effects through inhalation and if swallowed  
R 39/27/28 – Very toxic: danger of very serious irreversible effects in contact with skin and if swallowed  
R 39/26/27/28 – Very toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed  
.R 68/20 – Harmful: possible risk of irreversible effects through inhalation  
.R 68/21 – Harmful: possible risk of irreversible effects in contact with skin  
.R 68/22 – Harmful: possible risk of irreversible effects if swallowed  
R 68/20/21 – Harmful: possible risk of irreversible effects through inhalation and in contact with skin  
R 68/20/22 – Harmful: possible risk of irreversible effects through inhalation and if swallowed  
R 68/21/22 – Harmful: possible risk of irreversible effects in contact with skin and if swallowed  
R 68/20/21/22 – Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed  
.R 42/43 – May cause sensitization by inhalation and skin contact  
R 48/20 – Harmful: danger of serious damage to health by prolonged exposure through inhalation  
R 48/21 – Harmful: danger of serious damage to health by prolonged exposure in contact with skin  
R 48/22 – Harmful: danger of serious damage to health by prolonged exposure if swallowed  
R 48/20/21 – Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin  
R 48/20/22 – Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed  
R 48/21/22 – Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed  
R 48/20/21/22 – Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed  
R 48/23 – Toxic: danger of serious damage to health by prolonged exposure through inhalation  
R 48/24 – Toxic: danger of serious damage to health by prolonged exposure in contact with skin  
R 48/25 – Toxic: danger of serious damage to health by prolonged exposure if swallowed  
R 48/23/24 – Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin  
R 48/23/25 – Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed  
R 48/24/25 – Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed  
R 48/23/24/25 – Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed  
R 50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment  
R 51/53 – Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

R 52/53 – Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases

- S 1 – Keep locked up
- S 2 – Keep out of the reach of children
- S 3 – Keep in a cool place
- S 4 – Keep away from living quarters
- S 5 – Keep contents under ... (appropriate liquid to be specified by the manufacturer)
- S 6 – Keep under ... (inert gas to be specified by the manufacturer)
- S 7 – Keep container tightly closed
- S 8 – Keep container dry
- S 9 – Keep container in a well-ventilated place
- S 12 – Do not keep the container sealed
- S 13 – Keep away from food, drink and animal feedingstuffs
- S 14 – Keep away from ... (incompatible materials to be indicated by the manufacturer)
- S 15 – Keep away from heat
- S 16 – Keep away from sources of ignition – No smoking
- S 17 – Keep away from combustible material
- S 18 – Handle and open container with care
- S 20 – When using do not eat or drink
- S 21 – When using do not smoke
- S 22 – Do not breathe dust
- S 23 – Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer)
- S 24 – Avoid contact with skin
- S 25 – Avoid contact with eyes
- S 26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S 27 – Take off immediately all contaminated clothing
- S 28 – After contact with skin, wash immediately with plenty of (to be specified by the manufacturer)
- S 29 – Do not empty into drains
- S 30 – Never add water to this product
- S 33 – Take precautionary measures against static discharges
- S 35 – This material and its container must be disposed of in a safe way
- S 36 – Wear suitable protective clothing
- S 37 – Wear suitable gloves
- S 38 – In case of insufficient ventilation wear suitable respiratory equipment
- S 39 – Wear eye/face protection
- S 40 – To clean the floor and all objects contaminated by this material use ... (to be specified by the manufacturer)
- S 41 – In case of fire and/or explosion do not breathe fumes
- S 42 – During fumigation/spraying wear suitable respiratory equipment (appropriate wording to be specified by the manufacturer)
- S 43 – In case of fire use ... (indicate in the space the precise type of fire-fighting equipment. If water increases the risk add: Never use water)
- S 45 – In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
- S 46 – If swallowed, seek medical advice immediately and show this container or label
- S 47 – Keep at temperature not exceeding ... °C (to be specified by the manufacturer)
- S 48 – Keep wetted with ... (appropriate material to be specified by the manufacturer)

S 49 – Keep only in the original container  
 S 50 – Do not mix with ... (to be specified by the manufacturer)  
 S 51 – Use only in well-ventilated areas  
 S 52 – Not recommended for interior use on large surface areas  
 S 53 – Avoid exposure – Obtain special instructions before use  
 S 56 – Dispose of this material and its container to hazardous or special waste collection point  
 S 57 – Use appropriate containment to avoid environmental contamination  
 S 59 – Refer to manufacturer/supplier for information on recovery/recycling  
 S 60 – This material and its container must be disposed of as hazardous waste  
 S 61 – Avoid release to the environment. Refer to special instructions/safety data sheet  
 S 62 – If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label  
 S 63 – In case of accident by inhalation: remove casualty to fresh air and keep at rest  
 S 64 – If swallowed, rinse mouth with water (only if the person is conscious)  
 .S 1/2 – Keep locked up and out of the reach of children  
 .S 3/7 – Keep container tightly closed in a cool place  
 S 3/9/14 – Keep in a cool, well-ventilated place away from ... (incompatible materials to be indicated by the manufacturer)  
 .S 3/9/49 – Keep only in the original container in a cool, well-ventilated place  
 S 3/9/14/49 – Keep only in the original container in a cool, well-ventilated place away from ... (incompatible materials to be indicated by the manufacturer)  
 S 3/14 – Keep in a cool place away from ... (incompatible materials to be indicated by the manufacturer)  
 .S 7/8 – Keep container tightly closed and dry  
 .S 7/9 – Keep container tightly closed and in a well-ventilated place  
 S 7/47 – Keep container tightly closed and at a temperature not exceeding ... °C (to be specified by the manufacturer)  
 .S 20/21 – When using do not eat, drink or smoke  
 .S 24/25 – Avoid contact with skin and eyes  
 S 27/28 – After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of ... (to be specified by the manufacturer)  
 S 29/35 – Do not empty into drains; dispose of this material and its container in a safe way  
 S 29/56 – Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point  
 .S 36/37 – Wear suitable protective clothing and gloves  
 .S 36/39 – Wear suitable protective clothing and eye/face protection  
 .S 37/39 – Wear suitable gloves and eye/face protection  
 .S 36/37/39 – Wear suitable protective clothing, gloves and eye/face protection  
 S 47/49 – Keep only in the original container at a temperature not exceeding ... °C (to be specified by the manufacturer)