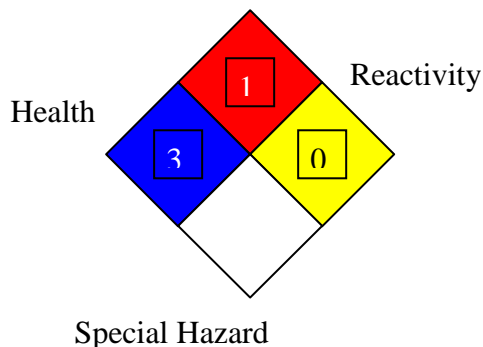




Jordan Petroleum Refinery Company
Material Safety Data Sheet
HEAT TRANSFER

NFPA: Flammability



JPRC LUB-12

HMIS III:

| | |
|--------------|---|
| Flammability | 1 |
| Health | 3 |
| Reactivity | 0 |

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

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| Product name: | HEAT TRANSFER (B, E) |
| MSDS Number: | JPRC LUB-12 |
| Product Use Description: | Heat Transfer B: For use in industrial closed heat transfer systems operating at bulk temperatures up to 320° C. Heat Transfer E: For use as a liquid phase heat transfer systems operating at bulk oil temperatures up to 320 ° C. |
| 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: http://www.jopetrol.com.jo E-mail: addewan@jopetrol.com.jo |

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS.

| | |
|---------------|--------|
| COMPOSITION : | SN 150 |
| | PPD |
| | SN 500 |
| | |

SECTION 3. HAZARDS IDENTIFICATION

Hazardous identification

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

product 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

Flush thoroughly with water for at least 15 min. If irritation occurs , call a physician

Skin contact

Wash contact areas with soap & water
Get medical attention if irritation developed.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion

If affected person is fully conscious, give one glass of water to drink. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

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.

Flammable limits- LEL: NA, UEL: NA.

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| NFPA hazard ID | Health : 3, Flammability : 1, Reactivity : 0 |
| Hazardous decomposition products | Carbon monoxide, carbon dioxide, some metallic oxides. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

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| Accidental Release Measures | <p>This material if slippery might cause traffic accident. If split on road, it must be cover with sand immediately. in the event of a spill or leak or accident person not wearing protective equipment & 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"> 1- Notify safety personal. 2- Remove all sources of heat and ignition. 3- Ventilate potentially explosive atmospheres. 4- Do not touch the spilled material; stop the leak if it is possible to do so without risk. 5- Use water spray to reduce vapors; do not get water inside container. Do not flush waste to sewers or open waterways. 6- For liquid spills, cover with sand and then remove for later disposal. 7- Prevent spills from entering storm sewers or drains. |
| Personal precautions | <p>Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (see section 8). Follow all fire-fighting procedures.</p> |

SECTION 7. HANDLING AND STORAGE

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| 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. |

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure controls/ personal protection

Respiratory protection

No special requirements under ordinary conditions of use and adequate ventilation.

Skin and body

No special equipment required. However, good personal hygiene practices should always be followed.

Hands

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

Eyes

Normal industrial eye protection practices should be.

Engineering controls

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

Occupational exposure limits

Exposure limit of SN 500, SN 150 for oil mist: 5.00 mg/m³

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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| Form: | Liquid |
| Appearance: | Bright and Clear, |
| Flash point for B: | 220 °C (COC) |
| Pour point for B: | -18 °C |
| VI for B: | 100 |
| Kinematic viscosity for B: | 5.1 cSt @ 100 ° C Test Method: ASTM D 445. |
| Coef. Of Expansion per °C for B: | 0.00076 |
| Flash point for E: | 220 °C (COC) |
| Pour point for E: | -21 °C |
| VI for E: | 37 |
| Kinematic viscosity for E: | 11 cSt @ 100 ° C Test Method: ASTM D 445. |
| Coef. Of Expansion per °C for E: | 0.00063 |

SECTION 10. STABILITY AND REACTIVITY

Stability:

The product is stable.

Material to avoid:

Strong oxidizing

Condition to avoid:

Extreme heat.

Hazardous decomposition products:

Sulphur oxides. Hydrogen sulphide. Carbon monoxide.

SECTION 11. TOXICOLOGICAL INFORMATION

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|------------------|---------------------------------------|
| Routes of Entry | Skin, Eyes, Ingestion, and Inhalation |
| Acute Effects | |
| Inhalation | Irritating to respiratory system. |
| Ingestion | Not determined. |
| Skin contact | Non-irritating to the skin. |
| Eye contact | Irritating to eyes. |
| LD ₅₀ | >2000 mg/kg |

SECTION 12. ECOLOGICAL INFORMATION

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| Environmental Fate and effects: (SN 500, SN 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

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| 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. OTHER INFORMATION

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| LD ₅₀ | Lethal Dose (mg/kg) |
| PEL | Permissible Exposure Limits |
| NFPA | National Fire Protection Association: |

PPE
SCBA
TWA
OSHA

ACGIH

Personal Protective Equipment
Self – Contained Breathing Apparatus
Time – Weighted Average.
Occupational Safety And Health
Administration
American Conference of
Governmental Industrial Hygienists