

MATERIAL SAFETY DATA SHEET

Issuing Date Apr. 7, 2008

Revision Date Aug. 2, 2010

1. Chemical Product and Company Identification

- a. Product name : LION DIFFUSION PUMP OIL A
 - b. Information on manufacturer
 - Company name : LION Corporation
 - Address : 1-3-7 Honjo, Sumida-ku Tokyo 130-8644, Japan
 - Relevant division : Chemical Products Business Sector
 - Phone number : +81-3-3621-6552
 - Fax number : +81-3-3621-6509
 - Emergency phone number : +81-3-3621-6552
 - c. Recommended use of the chemical and restrictions on use : Pump oil
 - d. Reference no. : 186301
-

2. Hazards Identification

- a. GHS classification
 - Physical and chemical hazards
 - Explosives Not applicable
 - Flammable gases Not applicable
 - Flammable aerosols Not applicable
 - Oxidizing gases Not applicable
 - Gases under pressure Not applicable
 - Flammable liquids Not classified
 - Flammable solids Not applicable
 - Self-reactive substances and mixtures Not applicable
 - Pyrophoric liquids Classification not possible
 - Pyrophoric solids Not applicable
 - Self-heating substances and mixtures Classification not possible
 - Substances and mixtures, which in contact with water, emit flammable gases Not applicable
 - Oxidizing liquids Not applicable
 - Oxidizing solids Not applicable
 - Organic peroxides Not applicable
 - Corrosive to metals Classification not possible
 - Health hazards
 - Acute toxicity (Oral) Classification not possible
 - Acute toxicity (Dermal) Classification not possible
 - Acute toxicity (Inhalation : gas) Classification not possible

- | | |
|--|-----------------------------|
| - Acute toxicity (Inhalation: vapor) | Classification not possible |
| - Acute toxicity (Inhalation : dust, mist) | Classification not possible |
| - Skin corrosion/irritation | Classification not possible |
| - Serious eye damage/irritation | Classification not possible |
| - Respiratory sensitization | Classification not possible |
| - Skin sensitization | Classification not possible |
| - Germ cell mutagenicity | Classification not possible |
| - Carcinogenicity | Classification not possible |
| - Reproductive toxicity | Classification not possible |
| - Specific target organ toxicity (Single exposure) | Classification not possible |
| - Specific target organ toxicity (Repeated exposure) | Classification not possible |
| - Aspiration hazard | Classification not possible |
- Environmental hazards

- Hazards to the aquatic environment - acute hazard	Classification not possible
- Hazards to the aquatic environment - chronic hazard	Classification not possible
- b. Label elements
- Pictograms
 - Signal words
 - Hazard statements : No hazard statements based on GHS classification.
 - Precautionary statements

[Prevention]

 - Provide eye wash facilities and safety shower near the workplace where the product is handled.
 - Provide sufficient ventilation in the workplace.
 - Wear suitable protective equipment such as protective gloves, eye protection/face protection, protective mask, etc.
 - Wash hands and face thoroughly after handling and gargle.

[Response]

 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
 - IF SWALLOWED : Rinse mouth with water and give 1-2 glasses of water or milk. Immediately get medical attention. Never give anything by mouth to an unconscious person.
 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - IF ON SKIN : Wash with plenty of soap and water. If symptoms like blister, pain, etc. occur, get medical attention as necessary.

[Storage]

 - Keep container tightly closed and store in a well-ventilated place.

[Disposal]

 - Dispose of contents and containers properly via a licensed industrial waste disposal contractor in compliance with relevant regulation.

3. Composition/Information on Ingredients

Single chemical substance/mixture : Single chemical substance
Chemical name or common name : Alkyl naphthalene
CAS No. : 56388-48-8, 56388-47-7
Concentration or concentration range : 100%
Serial no. of government gazette (ENCS) : 4-315
Component and concentration

Chemical name	Concentration (%)	Serial no. of government gazette (ENCS · ISHA)	CAS No.
Alkyl naphthalene	100	4-315	56388-48-8, 56388-47-7

(ENCS) Existing and New Chemical Substance Inventory
(ISHA) Industrial Safety and Health Act List

4. First-aid Measures

- a. If inhaled :
 - Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - b. If on skin :
 - Wash with plenty of water and soap.
 - If symptoms like blister, pain, etc. occur, get medical attention as necessary.
 - c. If in eyes :
 - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - d. If swallowed :
 - Rinse mouth with water and give 1-2 glasses of water or milk.
 - Immediately get medical attention.
 - Administer artificial respiration or oxygen as necessary.
 - Never give anything by mouth to an unconscious person. (If vomiting)
 - Rinse mouth with water thoroughly.
 - Induce vomiting by sticking one finger down your throat, if possible and then immediately get medical attention.
 - e. Protection for first-aiders :
 - Wear protective equipment such as rubber gloves and tight-fitting safety goggles.
-

5. Fire Fighting Measures

- a. Extinguishing media :
 - Dry powder, foam, carbon dioxide, sand

- b. Unsuitable extinguishing media : No data.
 - c. Special risk • hazard :
 - Since combustion gas contains toxic gases such as carbon monoxide, etc., do not breathe smoke during fire fighting.
 - d. Special fire fighting method :
 - Immediately shut off fuel supply.
 - Extinguish fire from upwind.
 - Evacuate unnecessary personnel to a safe area.
 - Cool surrounding facilities, etc. with water spray.
 - Take necessary measures to prevent materials damaging to the environment from releasing by spraying water for extinguishing.
 - e. Protection for fire-fighters :
 - Wear suitable protective equipment (gloves, glasses, mask) during fire fighting.
 - Extinguish fire from upwind and avoid inhalation of toxic gas.
-

6. Accidental Release Measures

- a. Personal precautions, protective equipment and emergency measures :
 - Make sure to wear rubber gloves, safety glasses, protective clothing, etc. during clean-up.
 - If spilled in large quantities, evacuate personnel to a safe area.
 - The spilled area is easy to be slippery. Pay attention to it.
 - For an indoor place, provide sufficient ventilation until clean-up has been completed.
 - Prepare fire extinguishing materials to prevent fire.
 - b. Precautions for the environment :
 - Do not discharge into rivers or sewers directly.
 - When diluted with large amounts of water, take care not to release to the environment without proper treatment of contaminated water.
 - c. Method for containment and clean-up :
 - For small spills, absorb with absorbent materials (earth, sand, dry sand, wastes, etc.) and collect into an empty container that can be closed and then dispose of it later. Mop residues thoroughly with wastes, rags, etc.
 - For large spills, dike with earth and sand, etc. to prevent spills and lead them to a safe place for collection. Shovel or vacuum into an empty container.
 - d. Preventive measure of secondary disaster :
 - Do not walk through spills.
 - Immediately eliminate all sources of ignition around the area and prepare extinguishing media.
 - Use only non-sparking tools.
-

7. Handling and Storage

- a. Handling :
 - Technical measures :

- Provide eye wash facilities and safety shower for emergency near the workplace where the product is handled.
 - Provide with sufficient ventilation in the workplace.
 - Wear suitable protective equipment such as protective gloves, eye protection/face protection, protective mask, etc.
 - Wash hands and face thoroughly after handling and gargle.
 - Use of open flame is strictly prohibited.
 - Use explosion-proof electrical equipment.
 - Make sure to ground equipment, apparatus to take precautionary measures against static discharges.
 - Local exhaust or general ventilation : Use local exhaust or general ventilation in a workplace.
 - Precaution : No data.
 - Precaution for safe handling : Use explosion-proof electrical equipment and take precautionary measures against static discharges for facilities.
- b. Storage :
- Technical measures :
 - Keep container tightly closed and store in a well-ventilated area.
 - Use of open flame is strictly prohibited.
 - Proper storage condition : No data.
 - Safe container and packaging material : Use container in compliance with standards.
-

8. Exposure Controls and Personal Protective Equipment

- a. Engineering controls :
- If vapor, smoke or mist is generated, use local exhaust ventilation.
 - Provide eye wash facilities and safety shower near the workplace where the product is handled.
 - Use explosion-proof electrical equipment and take precautionary measures against static discharges for facilities.
- b. Controlled exposure level : Not established.
- c. Permissible exposure level :
- The Japan Society for Occupational Health : Not established. (2007)
 - ACGIH : Not established. (2007)
- d. Personal protective equipment :
- Respiratory protection : Gas mask for organic solvent as necessary
 - Hand protection : Impermeable protective gloves (chemical-, oil-, solvent-resistant)
 - Eye protection : Safety glasses with side shields (safety goggles or face protection as necessary)
 - Skin and body protection : Anti-static protective clothing with long-sleeves
- e. General hygiene consideration :
- Wash hands and face thoroughly after handling and gargle.

9. Physical and Chemical Properties

- a. Appearance (physical state, form, color, etc.) : Pale yellow liquid (20°C)
 - b. Odor : No data.
 - c. pH : Not applicable
 - d. Melting point/freezing point : Pour point : Softening point 25°C or less
 - e. Initial boiling point and boiling range : No data.
 - f. Flash point : 221°C (COC)
 - g. Auto-ignition temperature (Ignition temperature) : 255°C
 - h. Upper/lower flammable or explosive limits : No data.
 - i. Vapor pressure : No data.
 - j. Vapor density : No data.
 - k. Specific gravity (Relative density) : 0.907~0.914 (15°C/4°C)
 - l. Solubility : Water solubility :
 - Water : Insoluble
 - Ethanol : Insoluble
 - Hexane : Soluble
 - m. Solubility : Solvent solubility : No data.
 - n. Partition coefficient(n-octanol/water) : No data.
 - o. Decomposition temperature : No data.
 - p. Other data :
 - Kinematic viscosity : 27~31 mm²/s (40°C)
 - Specific heat : 1.89 J/(g•°C)
-

10. Stability and Reactivity

- a. Stability :
 - Stable to heat, light, impact
 - Stable under normal handling condition
 - b. Possibility of hazardous reactions : No data.
 - c. Conditions to avoid : No data.
 - d. Incompatible materials : No data.
 - e. Hazardous decomposition products : No data.
-

11. Toxicological Information

- a. Acute toxicity (Oral) : No data.
- b. Acute toxicity (Dermal) : No data.
- c. Acute toxicity (Inhalation : gas) : No data.
- d. Acute toxicity (Inhalation: vapor) : No data.
- e. Acute toxicity (Inhalation : dust, mist) : No data.
- f. Skin corrosion/irritation : No data.

- g. Serious eye damage/eye irritation : No data.
 - h. Respiratory or skin sensitization : No data.
 - i. Germ cell mutagenicity : No data.
 - j. Carcinogenicity : No data.
 - IARC : Not listed
 - NTP : Not listed
 - The Japan Society for Occupational Health : Not listed
 - k. Reproductive toxicity : No data.
 - l. Specific target organ toxicity (Single exposure) : No data.
 - m. Specific target organ toxicity (Repeated exposure) : No data.
 - n. Aspiration hazard : No data.
-

12. Effects on the Environment

- a. Ecotoxicity : No data.
 - b. Persistence/degradability : No data.
 - c. Bio-accumulation : No data.
 - d. Mobility in soil : No data.
 - e. Other adverse effect : No data.
-

13. Precautions for Disposal

- a. Residual wastes :
 - When content is discarded, dispose of properly via a licensed industrial waste disposal contractor in compliance with relevant regulation.
 - b. Contaminated container and packages :
 - When empty contaminated container, package is discarded, remove contents completely and then, dispose of properly via a licensed industrial waste disposal contractor in compliance with relevant regulation.
-

14. Transport Information

- a. International regulation :
 - Inland transport : Follow the regulation under RID (The European regulation for the transport of dangerous goods), ADR (The European Agreement concerning the International Carriage of Dangerous Goods by Road).
 - Sea transport : Follow the regulation under IMDG (The International Maritime Dangerous Goods).
 - Air transport : Follow the regulation under ICAO-TI (International Civil Aviation Organization-Technical Instructions)/IATA-DGR (The International Air Transport Association-Dangerous Goods Regulations).

- UN class : Not applicable
 - UN number : Not applicable
 - b. Japan domestic regulation :
 - Inland transport : Follow the regulation under the 'Fire Service Act', 'Poisonous and Deleterious Substances Control Act', 'High Pressure Gas Control Act' and 'Road Traffic Act', etc.
 - Sea transport : Follow the regulation under 'Ship Safety Act'.
 - Air transport : Follow the regulation under 'Civil Aeronautics Act'.
 - c. Special safety measures :
 - Follow relevant regulation.
 - d. Specific safety measure and condition of transport :
 - Confirm no damages, corrosion and leakages of containers before transport.
 - Load containers in a way of no turning over, falling or damage and secure prevention of cargo collapse.
 - e. Guideline no. of first-aid measures during emergency : 171
-

15. Regulatory Information

- a. Fire Service Act :
 - Class 4 inflammable liquids, Class 4 petroleum chemicals, hazard class III
- b. Industrial Safety and Health Act :
 - Substances required to be indicated the name of the substance, ingredients etc. on the container or the package : Not applicable
 - Substances required to deliver in general the document containing specific information by SDS etc. : Not applicable
- c. Poisonous and Deleterious Substances Control Act :
 - Poisonous, deleterious substance : Not applicable
- d. Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof :
 - Designated chemical substance, etc. : Not applicable.
- e. Ship Safety Act : Not applicable
- f. International inventory status :
 - ENCS (Japan) : 4-315
 - TSCA (USA) : Listed
 - EINECS (EU) : Not listed
 - AICS (Australia) : Not listed
 - DSL (Canada) : Listed
 - ECL (Korea) : Not listed
 - PICCS (Philippines) : Not listed
 - IECSC (China) : Listed

16. Other Information

- a. Note on the information in the Material Safety Data Sheet
- This Material Safety Data Sheet may be revised based on the revision of a statute and new knowledge.
 - The information contained in this Material Safety Data Sheet is described based on the data and information currently available to us. However, no warranty is made with respect to contents, physico-chemical properties, risk • hazard, etc.
 - Since the information are provided only for normal handling, it is advisable to handle with proper safety measures for new application • use.
 - This Material Safety Data Sheet is translated into English based on Japanese MSDS and the regulation mentioned here is related to Japan. We are sure that the translation is made correctly, but don't have any responsibility for typos or mistranslation.