

## MATERIAL SAFETY DATA SHEET

## S-OIL TRANSFORMER OIL LT

Date of the previous version: 2018-11-30

Revision Date: 2018-11-30

Version 1

**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1. Product identifier**

Product name S-OIL TRANSFORMER OIL LT  
Pure substance/mixture Pure substance

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use Insulating oil

**1.3. Details of the supplier of the safety data sheet**

Supplier S-OIL CORPORATION  
192, Baekbeom-ro, Mapo-gu,  
Seoul 121-805, Korea

**For further information, please contact:**

Contact Point HSSEQ  
E-mail Address dolyoo@s-oil-total.com

**1.4. Emergency telephone number**

Korea +82 2 6320 2000

**2. HAZARDS IDENTIFICATION****2.1. Classification of the substance or mixture**

Classification  
Aspiration hazard : Category 1

Symbol(s)

**2.2. Label elements**

Labelled according to Danger

**2.3. hazards Statement**

H304 May be fatal if swallowed and enters airways

**2.4. Precautionary Statements**

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P331 Do NOT induce vomiting.  
P405 Store locked up.

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P501

Dispose of contents/container to follow Regulations

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1. Mixture**

Chemical Name	CAS-No	EC-No	Weight %
Linear Alkyl Benzene	67774-74-7	-	100

**4. FIRST AID MEASURES****4.1. Description of first-aid measures**

General advice	IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids.
Skin contact	Remove contaminated clothing and shoes. Wash skin with soap and water. Wash contaminated clothing before reuse. High pressure jets may cause skin damage. In this case, the casualty should be sent immediately to hospital.
Inhalation	Move to fresh air.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

**4.2. Most important symptoms and effects, both acute and delayed**

Eye contact	Not classified.
Skin contact	Not classified. High pressure injection of the products under the skin may have very serious consequences even though no symptom or injury may be apparent.
Inhalation	Not classified. Inhalation of vapors in high concentration may cause irritation of respiratory system.
Ingestion	Not classified. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**4.3. Indication of immediate medical attention and special treatment needed, if necessary**

Notes to physician	Treat symptomatically.
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**5. FIRE-FIGHTING MEASURES****5.1. Extinguishing media**

Suitable extinguishing media	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam.
Unsuitable extinguishing media	No information available

**5.2. Special hazards arising from the substance or mixture**

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**Special Hazard** Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.

**5.3. Advice for fire-fighters**

**Special protective equipment for fire-fighters** Wear self-contained breathing apparatus and protective suit.

**Other information** Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

**6. ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures**

**General Information** Do not touch or walk through spilled material. Contaminated surfaces will be extremely slippery. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

**6.2. Environmental precautions**

**General Information** Do not allow material to contaminate ground water system. Try to prevent the material from courses. Local authorities should be advised if significant spillages cannot be contained.

**6.3. Methods and material for containment and cleaning up**

**Methods for containment** Dam up. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

**6.4. Reference to other sections**

**Personal Protective Equipment** See Section 8 for more detail.

**Waste treatment** See section 13.

**7. HANDLING AND STORAGE****7.1. Precautions for safe handling**

**Advice on safe handling** When using, do not eat, drink or smoke. For personal protection see section 8. Use only in well-ventilated areas. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.

**Prevention of fire and explosion** Take precautionary measures against static discharges. Ground/bond containers, tanks and transfer/receiving equipment.

**Hygiene measures** Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Do not use abrasives, solvents or fuels. Do not dry hands with rags that have been contaminated with product. Do not put product contaminated rags into workwear pockets.

**7.2. Conditions for safe storage, including any incompatibilities**

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**Technical measures/Storage conditions** Keep away from food, drink and animal feedingstuffs. Keep in a bunded area. Keep container tightly closed. Keep preferably in the original container. Otherwise reproduce all indication of the regulation label on the new container. Do not remove the hazard labels of the containers (even if they are empty). Design the installations in order to avoid accidental emissions of product (due to seal breakage, for example) onto hot casings or electrical contacts. Protect from frost, heat and sunlight. Protect from moisture.

**Materials to Avoid** Strong oxidizing agents.

**7.3. Specific end uses****8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1. Control parameters**

**Exposure limits** No information available

**Legend** See section 16.

**8.2. Exposure controls****Occupational Exposure Controls**

**Engineering Measures** Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

**Personal Protective Equipment**

**General Information** If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

**Respiratory protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Respirator with combination filter for vapour/particulate (EN 14387). The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

**Eye Protection** If splashes are likely to occur, wear: Safety glasses with side-shields.

**Skin and body protection** Wear suitable protective clothing. Protective shoes or boots. Long sleeved clothing.

**Hand Protection** Hydrocarbon-proof gloves. Fluorinated rubber. Nitrile rubber. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves.

**Environmental exposure controls**

**General Information** The product should not be allowed to enter drains, water courses or the soil.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1. Information on basic physical and chemical properties**

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Color		Bright and Clear	
Physical State @20°C		liquid	
Odor		Characteristic	
<b>Property</b>	<b>Values</b>	<b>Remarks</b>	<b>Method</b>
pH		Not applicable	
Boiling point/boiling range		No information available	
Flash point	155 °C 311 °F		Pensky-Martens Closed Cup Pensky-Martens Closed Cup
Evaporation rate		No information available	
Flammability Limits in Air		No information available	
Vapor Pressure		No information available	
Vapor density		No information available	
Density	856 kg/m <sup>3</sup>	@ 15 °C	
Water solubility		No information available	
Solubility in other solvents		No information available	
logPow		No information available	
Autoignition temperature		No information available	
Viscosity, kinematic	4.3 mm <sup>2</sup> /s	@ 40 °C	
Explosive properties	Not explosive		
Oxidizing Properties	Not applicable		
Possibility of hazardous reactions	Not applicable		

### 9.2. Other information

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

General Information No information available.

### 10.2. Chemical stability

Stability Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

Hazardous Reactions None under normal processing.

### 10.4. Conditions to Avoid

Conditions to Avoid Heat (temperatures above flash point), sparks, ignition points, flames, static electricity.)

### 10.5. Incompatible Materials

Materials to Avoid Strong oxidizing agents.

### 10.6. Hazardous Decomposition Products

Hazardous Decomposition Product None under normal use.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

Acute toxicity Local effects Product Information

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<b>Skin contact</b>	LD50 : > 2000 mg/kg(Rabbit, OECD TG 402, GLP)
<b>Eye contact</b>	No data is available on the product itself
<b>Inhalation</b>	LC50 : > 1.82 mg/L(Rat, Dust/mist)
<b>Ingestion</b>	LD50 : > 5000 mg/kg(Rat, GLP)
<b>Skin corrosion/irritation</b>	Mild skin irritation (Rabbit, GLP)
<b>Eye contact</b>	This product is not eye irritation (Rabbit, GLP)
<b><u>Sensitization</u></b>	
<b>Sensitization</b>	Not classified as a sensitizer.
<b><u>Specific effects</u></b>	
<b>Carcinogenicity</b>	This product is not classified carcinogenic.
<b>Mutagenicity</b>	In vivo – Mouse: Negative (Gene mutation micronucleus assay, OECD TG 474, GLP) In vitro - Salmonella typhimurium: Negative (Ames test, GLP) - Chinese hamster Ovary: Negative (mammalian cell gene mutation assay, OECD TG 476, GLP)
<b>Reproductive toxicity</b>	This product does not present any known or suspected reproductive hazards.
<b><u>Repeated Dose Toxicity</u></b>	
<b>Subchronic toxicity</b>	Mating, pregnancy and fertility rates of parental animals were not influenced. In the high-dose-group, gestation length was significantly increased for the F2 litter interval (Rat, OECD TG 416, GLP)
<b><u>Target Organ Effects (STOT)</u></b>	
<b>Target Organ Effects (STOT)</b>	Specific target organ toxicity (single exposure): - Nine of the animals developed a slightly raised red area at the dose site on day 6. Scabs formed at this area by day 9. All animals were fully recovered by the end of the experiment. (Rat, OECD TG 402, GLP) Specific target organ toxicity (repeated exposure): - Reduction in body weight and food consumption were observed at all exposure levels. No gross pathological changes were noted. (Rat, OECD TG 407, GLP)
<b><u>Other information</u></b>	
<b>Other adverse effects</b>	Characteristic skin lesions (pimples) may develop following prolonged and repeated exposures (contact with contaminated clothing).

**12. ECOLOGICAL INFORMATION****12.1. Toxicity**

LAB has a very low solubility in water, so the release of LAB into aquatic environments presents a potential risk to macroinvertebrates. But fish are exposed to much lesser risk because toxicity thresholds are above the water solubility.

**Acute aquatic toxicity - Product Information**

**Toxicity to fish** Fish: LC50> 1000 mg/L (Lepomis macrochirus, 96h, GLP)

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**Toxicity to daphnia and other** No information available.**Toxicity to algae** No information available.**Chronic aquatic toxicity • Product Information**

No information available.

**Effects on terrestrial organisms**

No information available.

**12.2. Persistence and degradability****General Information****Persistence** log Kow= 7.5-9.12, BOD= 64.1%(28d)**Degradability** LAB is expected to be completely biodegradable in aquatic and terrestrial environments under aerobic conditions**12.3. Bioaccumulative potential****Product Information** BCF = 35**logPow** No information available**12.4. Mobility in soil****Soil** Koc = 22000.**Air** Loss by evaporation is limited.**Water** Insoluble. The product spreads on the surface of the water.**12.5. Results of PBT and vPvB assessment****PBT and vPvB assessment** No information available.**12.6. Other adverse effects****General Information** No information available**13. DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods****Waste from Residues / Unused Products** Should not be released into the environment. Do not empty into drains. Dispose of in accordance with all applicable national environmental laws and regulations. Where possible recycling is preferred to disposal or incineration. After use, this oil must be sent to a licensed waste oil facility. Incorrect disposal of used oil poses a risk to the environment. Mixture with other waste types such as solvents, brake- and cooling liquids is forbidden.**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal.**Other information** Refer to section 8 for safety and protective measures for disposal personnel.**14. TRANSPORT INFORMATION**

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**ADR/RID** Not regulated**IMDG/IMO** Not regulated**ICAO/IATA** Not regulated**ADN** Not regulated**15. REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories**

- U.S.A. management information(OSHA regulation): Not applicable
- U.S.A. management information(CERCLA regulation): Not applicable
- U.S.A. management information(EPCRA 302 regulation): Not applicable
- U.S.A. management information(EPCRA 304 regulation): Not applicable
- U.S.A. management information(EPCRA 313 regulation): Not applicable
- U.S.A. management information(Rotterdam Convention on Substances): Not applicable
- U.S.A. management information(Stockholm Convention on Substances): Not applicable
- U.S.A. management information(Mont- real Protocol on Substances): Not applicable
- EU Classification (Classification): Not applicable
- EU Classification (Risk Phrases): Not applicable
- EU Classification (Safety Phrases): Not applicable

**15.2. Chemical Safety Assessment****Chemical Safety Assessment** No information available**16. OTHER INFORMATION**

Legend Section 8

+	Sensitizer	*	Skin designation
**	Hazard Designation	C:	Carcinogen
M:	Mutagen	R:	Toxic to reproduction

**Revision Date:** 2018-11-30**Revision Note** \*\*\* Indicates updated section.

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of the safety data sheet