

# MATERIAL SAFETY DATA SHEET

## S-OIL 7 SUPER COOLANT

Date of the previous version: 2021-07-01(Ver. 2.1)

Revision Date: 2025-02-19

Version 3.0

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product name S-OIL 7 SUPER COOLANT  
Pure substance/mixture Mixture

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

Recommended Use Coolant / Antifreeze

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

Supplier S-OIL CORPORATION  
192, Baekbeom-ro, Mapo-gu,  
Seoul 04196, Korea

#### For further information, please contact:

Contact Point KD Finechem  
E-mail Address yc0103@kdfinechem.com

#### 1.4. Emergency telephone number

Korea +82-31-680-0505

### 2. HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

##### GHS Classification

Acute toxicity (Oral): Category 4 (H302)  
Specific target organ toxicity following repeat exposure: Category 2 (H373)

#### 2.2. Label elements

##### GHS label elements, including precautionary statements

Symbol(s) GHS07, GHS08

Signal Words Warning



#### 2.3. GHS Hazard Statements

H302: Harmful if swallowed.  
H373: May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

#### 2.4. GHS Precautionary Statements

Prevention P260: Do not breathe vapors/spray.  
P264: Wash Hands thoroughly after handling.  
P270: Do not eat, drink, or smoke when using this product.

Response P301+P312: IF SWALLOWED: Call a POISON CENTER/ doctor/.../ if you feel unwell.  
P314: Get medical advice/attention if you feel unwell.  
P330: Rinse mouth.

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**Storage** Not Classified**Disposal** P501: Dispose of contents and container in accordance with applicable regulations.

#### **2.5. Other hazards**

**Physical-Chemical Properties** Contaminated surfaces will be extremely slippery.**Environmental properties** Should not be released into the environment

### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

#### **3.1. Mixture**

Chemical Name	CAS-No	EC-No	Weight %
1. ETHYLENE GLYCOL	107-21-1	203-473-3	90-94
2. WATER	7732-18-5	231-791-2	3-7
3. Orthophosphoric acid	7664-38-2	231-633-2	1-2
4. Potassium hydroxide	1310-58-3	215-181-3	1-2

**Additional information** No data available.

### **4. FIRST AID MEASURES**

#### **4.1. Description of first-aid measures**

**General advice** Take off contaminated clothing.**Eye contact** Rinse cautiously with water for several minutes.  
In all cases of doubt, or when symptoms persist, seek medical advice.**Skin contact** Rinse skin with water/shower.  
In all cases of doubt, or when symptoms persist, seek medical advice.**Inhalation** Provide fresh air.  
In all cases of doubt, or when symptoms persist, seek medical advice.**Ingestion** Rinse mouth with water (only if the person is conscious).  
Call a doctor.**Protection of First-aiders**

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

**Eye contact** Not classified.**Skin contact** Not classified.

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Inhalation Not classified.

Ingestion Fatigue, Vertigo, Agitation, Diarrhea, Vomiting, Nausea, Unconsciousness

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

Notes to physician Treat symptomatically.

### **5. FIRE-FIGHTING MEASURES**

#### **5.1. Extinguishing media**

Suitable extinguishing media co-ordinate firefighting measures to the fire surroundings water spray, alcohol resistant foam, dry extinguishing powder, Carbon dioxide (CO<sub>2</sub>), ABC powder. Foam. Water spray or fog.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire.

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

Special Hazard Combustible. Vapors are heavier than air, spread along floors and form explosive mixtures with air.

Hazardous combustion products In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

#### **5.3. Advice for fire-fighters**

Special protective equipment for fire-fighters In case of fire and/or explosion do not breathe fumes.  
Fight fire with normal precautions from a reasonable distance.  
Wear self-contained breathing apparatus.

Other information

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.1. Personal precautions, protective equipment, and emergency procedures**

General Information For non-emergency personnel  
Avoid contact with skin, eyes, and clothes.  
Do not breathe vapors/spray.

#### **6.2. Environmental precautions**

General Information Keep away from drains, surface, and ground water.

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

Methods for containment Covering of drains.

Methods for cleaning up Absorb with liquid-binding material  
(sand, diatomaceous earth, acid- or universal binding agents).

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### 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 Provision of sufficient ventilation.

Prevention of fire and explosion No data available

Hygiene measures Wash hands before breaks and after work.  
Keep away from food, drink, and animal feeding stuffs.

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

Technical measures/Storage conditions Keep container tightly closed. Store in a dry place. Hygroscopic.  
Protect against external exposure, such as: humidity

Incompatible substances or mixtures Recommended storage temperature: 15 – 25 °C  
Observe hints for combined storage.

Materials to Avoid Strong oxidizing agents.

### 7.3. Specific end uses

Recommendations Coolant and antifreeze.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

Chemical Name	Country	Identifier	TWA (ppm)	TWA (mg/ Ⓕ)	STEL (ppm)	STEL (mg/ Ⓕ)	Ceiling-C (ppm)	Ceiling-C (mg/ Ⓕ)	Notation
1. Ethylene Glycol	USA	ACGIH	25		50	10			A/P
	USA	OSHA					40		PEL
	EU	IOELV	20	52	40	104			H
	GB	WEL		10					P
	GB	WEL	20	52	40	104			V
	IE	OELV	20	52	40	104			V
3. Ortho Phosphoric acid	USA	ACGIH		1		3			
	EU	IOELV		1		2			
	GB	WEL		1		2			
	IE	OELV		1		2			
4. Potassium hydroxide	USA	ACHIH				2			
	GB	WEL				2			
	IE	OELV				2			

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**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

Protective engineering solutions should be implemented and in use before personal protective equipment is considered. The personal protective equipment (PPE2) recommendations apply to the product ITSELF. In case of mixtures or formulations, it is suggested that you contact the relevant PPE suppliers.

##### Respiratory protection

None under normal use conditions. When workers are facing concentrations above the exposure limit, they must use appropriate certified respirators. Respirator with combination filter for vapors/particulate (EN 14387): Type A/P1. Warning! filters have a limited use duration. 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. EN 166.

##### Skin and body protection

Long sleeved clothing. Wear suitable protective clothing. Protective shoes or boots. Type 4/6.

##### Hand Protection

Hydrocarbon-proof gloves. Fluorinated rubber. Nitrile rubber. In case of prolonged contact with the product, it is recommended to wear gloves complying with EN 420 and EN 374 standards, protecting at least for 480 minutes and having a thickness of 0.38 mm at least. These values are indicative only. The level of protection is provided by the material of the glove, its technical characteristics, its resistance to the chemicals to be handled, the appropriateness of its use and its replacement frequency. 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, and the contact time.

#### 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

Color  
Physical State @20°C  
Odor

RED  
Liquid  
Characteristic

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	7.0 – 9.0		
Boiling point/boiling range	> 100°C / 173°C		
Flash point	> 111 °C		
Evaporation rate		No information available	
Flammability Limits in Air		No information available	
Vapor Pressure	0.0065 kPa	(@20°C) (Ethylene Glycol)	
Vapor density	(Air=1): 2.1	No information available	
Density	1.120 ~ 1.150 g/cm <sup>3</sup>	@ 20 °C	
Water solubility	Soluble		

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Solubility in other solvents		No information available
log Pow	-1.36 (Log Kow)	No information available
Autoignition temperature	398°C	(Ethylene Glycol)
Viscosity, kinematic		@ 40 °C
Explosive properties	3.2 ~ 15.3%	(Ethylene Glycol)
Oxidizing Properties	Not applicable	
Possibility of hazardous reactions	Not applicable	

#### **9.2. Other information**

### **10. STABILITY AND REACTIVITY**

#### **10.1. Reactivity**

**General Information** This material is not reactive under normal ambient conditions.  
If heated: Vapors may form explosive mixtures with air.

#### **10.2. Chemical stability**

**Stability.** The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### **10.3. Possibility of hazardous reactions**

**Hazardous Reactions** Exothermic reaction with: Sulfuric acid, Alkali hydroxide (caustic alkali), Aluminum, Nitric acid,  
Risk of ignition: Chlorates, Permanganates, Peroxides, strong oxidizer

#### **10.4. Conditions to Avoid**

**Conditions to Avoid** Protect from moisture. Keep away from heat.

#### **10.5. Incompatible Materials**

**Materials to Avoid** aluminum, zinc

#### **10.6. Hazardous Decomposition Products**

**Hazardous Decomposition Product** Hazardous combustion products: see section 5.

### **11. TOXICOLOGICAL INFORMATION**

#### **11.1. Information on toxicological effects**

##### **Acute toxicity Local effects Product Information**

<b>Skin contact</b>	essentially non-irritating
<b>Eye contact</b>	essentially non-irritating
<b>Inhalation</b>	Data are not available.
<b>Ingestion</b>	diarrhea, vomiting, nausea, Liver, and kidney damage

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#### Acute toxicity - Component Information

Chemical name	Oral	Dermal	Inhalation
1. ETHYLENE GLYCOL	LD50 7712 mg/kg bw / Rat male, female	LD50 > 3500 mg/kg bw / Mouse male, female	-
2. WATER	LD50 90000mg/kg Rat	-	-
3. Orthophosphoric acid	LD50 Oral 300 ~ 2000 mg/kg Rat - male -	LD50 2740 mg/kg (OECD Test Guideline 402)	-
4. Potassium hydroxide	LD50 333 mg/kg Rat (OECD TG 425)	-	-

#### Sensitization

**Sensitization** Shall not be classified as a respiratory or skin sensitizer.

#### Specific effects

**Carcinogenicity** This product is not classified carcinogenic.  
**Mutagenicity** This product is not classified as mutagenic.  
**Reproductive toxicity** This product does not present any known or suspected reproductive hazards.

#### Repeated Dose Toxicity

**Sub chronic toxicity** May cause damage to organs (kidney) through prolonged or repeated exposure (if swallowed).

#### Target Organ Effects (STOT)

**Target Organ Effects (STOT)** Shall not be classified as a specific target organ toxicant (single exposure).

#### Other information

**Other adverse effects** No data available.

## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity

1) Acute toxicity

Chemical name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish
1. ETHYLENE GLYCOL	EC50 6500~13000mg/L 96hr (Pseudokirchnerella subcapitata, EPA 600/9-78- 018)	LC50 MIN 100mg/L 48hr Daphnia magna (OECD Guideline 202, GLP)	LC50 72860mg/L 96hr Pimephales promelas
2. WATER	-	-	-
3. Orthophosphoric acid	EC50> 100 mg/L 72 hr Desmosomes suspicious	EC50 100 mg/L 48 hr Daphnia magna	LC50 75.1 mg/L 96 hr Oryzias latipes
4. Potassium hydroxide			LC50 - 165 mg/L - 24 h

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#### 2) Chronic Toxicity

Chemical name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish
1. ETHYLENE GLYCOL	IC50 (4 days) 10.94 g/L NOEC (72 h) 100 mg/L	NOEC (7 days) 8.59 - 24 g/L	NOEC (28 days) 40 mg/L LC50 (28 days) 1.5 g/L
2. WATER	-	-	-
3. Orthophosphoric acid	EC50 for freshwater algae 100 mg/L EC10 or NOEC for freshwater algae 100 mg/L	-	-
4. Potassium hydroxide	-	-	-

**Effects on terrestrial organisms** No information available.

#### **12.2. Persistence and degradability**

##### General Information

##### Component Information

1. ETHYLENE GLYCOL

Theoretical Oxygen Demand: 1,29 g/g  
 Theoretical Carbon Dioxide: 1,418 mg/mg  
 Biochemical Oxygen Demand: 0,78 g/g  
 Process of degradability  
 biotic/abiotic: 83 – 96 %(14d)  
 DOC removal: 90 – 100 %(10d)

#### **12.3. Bio accumulative potential**

**Product Information** No information available.

**log Pow** No information available

##### Component Information

1. ETHYLENE GLYCOL

n-octanol/water (log KOW): -1,36 (ECHA)

#### **12.4. Mobility in soil**

##### Soil

1. ETHYLENE GLYCOL

Henryho konstanta 0,013 Pa m<sup>3</sup>/mol at 25 °C (ECHA)

##### Air

Loss by evaporation is limited.

##### Water

soluble.

#### **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**

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#### **13.1. Waste treatment methods**

<b>Waste from Residues / Unused Products</b>	Should not be released into the environment. Do not empty into drains. Dispose of in accordance with all applicable national environment laws and regulations. Where possible recycling is preferred to disposal or incineration
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>Other information</b>	Refer to section 8 for safety and protective measures for disposal personnel.

#### **14. TRANSPORT INFORMATION**

<b>ADR/RID</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated
<b>ICAO/IATA</b>	Not regulated
<b>ADN</b>	Not regulated

#### **15. REGULATORY INFORMATION**

##### **15.1. Safety, health, and environmental regulations/legislation specific for the substance or mixture**

##### **International Inventories**

<b>TSCA</b>	All ingredients are listed in the inventory.
<b>KECL</b>	All ingredients are listed in the inventory.

##### **Legend**

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

KECL - Korean Existing and Evaluated Chemical Substances

##### **Further information**

##### **European Union (EU)**

Restrictions according to REACH, Annex XVII (<https://echa.europa.eu/substances-restricted-under-reach>)

##### **Ethylene Glycol - Entry 3**

##### **Potassium hydroxide - Entry 75**

List of substances subject to authorization (REACH, Annex XIV)/SVHC - candidate list

Not listed

Seveso Directive 2012/18/EU (Seveso III)

Not listed

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

Not listed

Water Framework Directive (WFD)

Listed

##### **Potassium hydroxide - 7. Metals and their compound**

Directive 2000/60/EC ANNEX VIII INDICATIVE LIST OF THE MAIN POLLUTANTS

Regulation on the marketing and use of explosives precursors

Not listed

Regulation on drug precursors

Not listed

Regulation on substances that deplete the ozone layer (ODS)

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Not listed  
 Regulation concerning the export and import of hazardous chemicals (PIC)  
 Not listed  
 Regulation on persistent organic pollutants (POP)  
 Not listed  
 Other information  
 Directive 94/33/EC on the protection of young people at work.  
 Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

**USA & CANADA**

OSHA regulation (29 CFR1910.119): Not Listed  
 CERCLA 103 regulation (40 CFR 302.4): Listed - **Ethylene Glycol (2267.95kg, 5000lb)**  
 EPCRA 302 regulation (40 CFR355.30): Not Listed  
 EPCRA 304 regulation (40 CFR355.40): Not Listed  
 EPCRA 311 & 312 regulation (40 CFR370): Not Listed  
 EPCRA 313 regulation (40 CFR372.65): Listed - **Ethylene Glycol**  
 US. Toxic Substances Control Act: Listed  
 CWA (Clean Water Act): This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).  
 CALIFORNIA PROPOSITION 65: Listed - **Ethylene Glycol (Developmental)**  
 U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
1. Ethylene Glycol	Listed	Listed	Listed
2. Water	Not Listed	Not Listed	Not Listed
3. Orthophosphoric acid	Listed	Listed	Listed
4. Potassium hydroxide	Listed	Listed	Listed

CEPA - Domestic Substances List (DSL): Listed

**15.2. Chemical Safety Assessment**

**Chemical Safety Assessment**      No information available

**16. OTHER INFORMATION**

**Abbreviations, acronyms**

**Legend Section 8**

- \*Ceiling-C = Ceiling value is a limit value above which exposure should not occur
- \*STEL = Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15 minute period (unless otherwise specified)
- \* TWA =TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours' time-weighted average (unless otherwise specified)
- \*V = As vapors
- \*A = aerosol
- \*P = particulate matter
- \*H = Absorbed through the skin

**Revision Date:** 2025-02-19  
**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.**

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End of the safety data sheet