

MATERIAL SAFETY DATA SHEET**S-OIL SEVEN RED #9 SN 5W-20**

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

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

| | |
|------------------------|-----------------------------|
| Product name | S-OIL SEVEN RED #9 SN 5W-20 |
| Pure substance/mixture | Mixture |

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

| | |
|-----------------|-----------|
| Recommended Use | Lubricant |
|-----------------|-----------|

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 | HSEQ |
| E-mail Address | |

1.4. Emergency telephone number

| | |
|-------|-----------------|
| Korea | +82 2 3772 5655 |
|-------|-----------------|

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

Not classified as hazardous

2.2. Label elements**GHS label elements, including precautionary statements**

| | |
|-----------|----------------|
| Symbol(s) | Not Classified |
|-----------|----------------|

| | |
|--------------|----------------|
| Signal Words | Not Classified |
|--------------|----------------|

2.3. GHS Hazard Statements

Not classified.

2.4. GHS Precautionary Statements

| | |
|------------|----------------|
| Prevention | Not Classified |
|------------|----------------|

| | |
|----------|----------------|
| Response | Not Classified |
|----------|----------------|

| | |
|---------|----------------|
| Storage | Not Classified |
|---------|----------------|

| | |
|----------|----------------|
| Disposal | Not Classified |
|----------|----------------|

MATERIAL SAFETY DATA SHEET

S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

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 % |
|----------------------------------------------------------------------|------------|-----------|-------------|
| Distillates (petroleum), hydrotreated heavy paraffinic | 64742-54-7 | 265-157-1 | 83.0 ~ 92.0 |
| bis(nonylphenyl)amine | 36878-20-3 | - | 0.5 ~ 1.5 |
| zinc O,O,O',O'-tetrakis (1,3-dimethylbutyl) bis (phosphorodithioate) | 2215-35-2 | - | < 1.0 |

Additional information Product containing mineral oil with less than 3% DMSO extract as measured by IP 346

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.

MATERIAL SAFETY DATA SHEET

S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable extinguishing media No information available

5.2. Special hazards arising from the substance or mixture

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 entering drains or water 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.

MATERIAL SAFETY DATA SHEET

S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

| | |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 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

| | |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical measures/Storage conditions | Keep away from food, drink and animal feeding stuffs. 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 | Mineral oil mist: USA: OSHA (PEL) TWA 5 mg/m ³ , NIOSH (REL) TWA 5 mg/m ³ , STEL 10 mg/m ³ , ACGIH (TLV) TWA 5 mg/m ³ |
| 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. |

MATERIAL SAFETY DATA SHEET

S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

| | | | |
|------------------------------------|-------------------------|--------------------------|------------------------------------------------------|
| Color | | amber | |
| Physical State @20°C | | liquid | |
| Odor | | Characteristic | |
| <u>Property</u> | <u>Values</u> | <u>Remarks</u> | <u>Method</u> |
| pH | | Not applicable | |
| Boiling point/boiling range | | Not applicable | |
| Flash point | 235 °C 455 °F | | Cleveland Open Cup (COC) Cleveland Open Cup (COC) |
| Evaporation rate | | No information available | |
| Flammability Limits in Air | | No information available | |
| Vapor Pressure | | No information available | |
| Vapor density | | No information available | |
| Density | 848 kg/m ³ | @ 15 °C | |
| Water solubility | Negligible | Insoluble | |
| Solubility in other solvents | | No information available | |
| logPow | | No information available | |
| Autoignition temperature | | No information available | |
| Viscosity, kinematic | 50.1 mm ² /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

MATERIAL SAFETY DATA SHEET

S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

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

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.

Eye contact . Not classified.

Inhalation . Not classified. Inhalation of vapors in high concentration may cause irritation of respiratory system.

Ingestion . Not classified.

Acute toxicity - Component Information

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------------------------------------------------------------|-----------------------------------|----------------------------------------|--------------------------------------------|
| Distillates (petroleum), hydrotreated heavy paraffinic | LD50 > 5000 mg/kg (rat) | LD50 > 5000 mg/kg (rabbit) | LC50 5 mg/L (4hr, aerosol, rat – OECD 403) |
| bis(nonylphenyl)amine | LD50 > 5000mg/kg (rat – OECD 401) | LD50 > 2000 mg/kg (rabbit – OECD 402) | - |
| zinc O,O,O',O'-tetrakis (1,3-dimethylbutyl) bis (phosphorodithioate) | LD50 2230mg/kg (rat – OECD 401) | LD50 > 25000 mg/kg (rabbit – OECD 402) | LC50 > 2 mg/L (1h, rat – OECD 403) |

Sensitization

Sensitization Not classified as a 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

Subchronic toxicity No information available.

Target Organ Effects (STOT)

Target Organ Effects (STOT) No information available.

MATERIAL SAFETY DATA SHEET
S-OIL SEVEN RED #9 SN 5W-20

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

Other information
Other adverse effects

Characteristic skin lesions (pimples) may develop following prolonged and repeated exposures (contact with contaminated clothing).

12. ECOLOGICAL INFORMATION
12.1. Toxicity
Acute aquatic toxicity - Component Information

| Chemical name | Toxicity algae | Toxicity to daphnia and other aquatic invertebrates | Toxicity to fish |
|----------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|
| Distillates (petroleum), hydrotreated heavy paraffinic | EL50 > 100 mg/l (48h, Pseudokirchnerella subcapitata – OECD 201) | EL50 > 10000 mg/l (48h, Daphnia magna – OECD 202) | LL50 > 100 mg/l (96h, Oncorhynchus mykiss – OECD 203) |
| bis(nonylphenyl)amine | EL50 (72h) > 100mg/l (Pseudokirchnerella subcapitata) | EL50 (48h) > 100mg/l (Daphnia magna) | LL50 (96h) > 100mg/l (Danio rerio) |
| zinc O,O,O',O'-tetrakis (1,3-dimethylbutyl) bis (phosphorodithioate) | EL50 (72h) 24mg/l (Desmodesmus subspicatus) | EL50 (48h) 23mg/l (Daphnia magna) | LL50 (96h) 4.5mg/l (Oncorhynchus mykiss) |

Chronic aquatic toxicity - Component Information

| Chemical name | Toxicity algae | Toxicity to daphnia and other aquatic invertebrates | Toxicity to fish |
|----------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------|
| Distillates (petroleum), hydrotreated heavy paraffinic | | NOEL 10 mg/l (21d, Daphnia magna – QSAR Petrotox) | NOEL > 1000 mg/l (14/28d, Oncorhynchus mykiss – QSAR Petrotox) |
| bis(nonylphenyl)amine | EL10 (72h) > 100mg/l (Pseudokirchnerella subcapitata) | EL10 (21d) 4.12mg/l (Daphnia magna) | NOEL10 (34d) 10mg/l (Danio rerio) |
| zinc O,O,O',O'-tetrakis (1,3-dimethylbutyl) bis (phosphorodithioate) | NOEL (72h) 10mg/l (Desmodesmus subspicatus) | NOEL (21d) 0.4mg/l (Daphnia magna) | - |

Effects on terrestrial organisms

No information available.

12.2. Persistence and degradability
General Information

No information available.

12.3. Bioaccumulative potential
Product Information

No information available.

logPow

No information available

Component Information

No information available.

12.4. Mobility in soil
Soil

Given its physical and chemical characteristics, the product generally shows low soil mobility.

Air

Loss by evaporation is limited.

MATERIAL SAFETY DATA SHEET**S-OIL SEVEN RED #9 SN 5W-20**

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

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 referred to disposal or incineration.

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

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**

TSCA
KECL

Legend

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

KECL - Korean Existing and Evaluated Chemical Substances

Further information**15.2. Chemical Safety Assessment**

Chemical Safety Assessment No information available

16. OTHER INFORMATION

MATERIAL SAFETY DATA SHEET**S-OIL SEVEN RED #9 SN 5W-20**

Date of the previous version: 2019-06-19

Revision Date: 2025-08-08

Version 6

Abbreviations, acronyms

Legend Section 8

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

Revision Date: 2025-08-08**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