



SPECIALIZED LUBRICANTS

1. Substance/Product Identification

Product Name: 281S Synthetic Heat Transfer Fluid

Company/Address: Schaeffer Mfg

102 Barton Street

Saint Louis, Missouri 63104

USA

Synonyms:

Preparation/Revision Date: August 19, 2011

Product Use/Type: Synthetic heat transfer fluid

Emergency Phone Number: +1 314 865-4105 (24-hour response number)

+ 1 314 865-4100 (Business hours 8:30AM-5:00PM)

1-800-325-9962 (US & Canada)

Website: www.schaefferoil.com

MSDS Number: 281S Version 1.0

2. Hazards Identification

Appearance: White color liquid

Odor: mild odor

Principal Hazards: Eye, skin and upper respiratory irritation

Hazardous Materials Information System

(U.S.A)

Health: 1

Fire: 1

Reactivity: 0

National Fire Protection Agency System

(U.S.A.)

Health: 1

Fire: 1

Reactivity: 0

See Section 11 for complete health hazard information



GHS Symbol:

Product Name: 281S Synthetic Heat Transfer Fluid

3. Composition and Information on Ingredients

Hazardous Ingredients

Ingredient Name	CAS No.	EU Number	Percentage (by wt.)
N-phenylbenzeneamine, reaction products of 2,4,4-trimethylpentene	68411-46-1	270-128-1	<0.5
1-Decene Homopolymer, Hydrogenated (PAO)	68037-01-4	500-183-1	1 -99

4. First Aid Measures

Ingestion: If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person.

Eyes: Flush eyes with running water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get immediate medical attention.

Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.

Skin: To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse. Get medical attention if any irritation or redness develops.

Additional Information: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis

Product Name: 281S Synthetic Heat Transfer Fluid

5. Fire Fighting Measures:

Flash Point: 475°F (246°C) ASTM D-92 C.O.C method

Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames

Firefighting Procedures: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus

Unusual Fire & Explosion: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion

6. Accidental Release Measures

Spill Procedures and Clean up methods: Eliminate all sources of ignition in vicinity of spilled material. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Collect used absorbent material and discard as dictated by National, International, Federal, State, Provincial and local laws and regulations. Spills are very slippery and should be cleaned up promptly.

Personal Precautions: Wear appropriate personal protective equipment when cleaning up spills.

Environmental Precautions: U.S.A. regulations may require reporting spills of this material that could reach any surface waters. Report spills to local authorities and/or the National Response Center at (800) 424-8802 as appropriate or required. Report spills to all applicable National, International, Federal, State, Provincial and local authorities

Product Name: 281S Synthetic Heat Transfer Fluid

7. Handling & Storage

Handling: Avoid all contact of product with eyes and skin. Wash thoroughly after handling and before eating, smoking or using toilet facilities. Do not swallow or inhale vapors. Do not eat, drink or smoke in work areas.

Storage: Do not store product at elevated temperatures. Store in a cool dry place that has adequate ventilation. Do not store near food or feed products. Keep containers closed when not in use.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid and/or vapor) and can be dangerous. Do not cut, weld, braze, solder, drill, grind or expose containers to heat, flame, sparks, static electricity or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed and promptly returned to a drum reconditioner or disposed of properly.

8. Exposure Controls and Personal Protection

Occupational Exposure Limits

Ingredient	OSHA TWA	OSHA STEL	ACGIH TWA	ACGIH STEL
N-phenylbenzeneamine, reaction products of 2,4,4-trimethylpentene	N/E	N/E	N/E	N/E
1-Decene Homopolymer, Hydrogenated (PAO)	5 mg/m ³		5 mg/m ³	

(s)-Skin exposure
(p) proposed limit
(c) – Ceiling limit

(l) Recommended exposure limit
u) supplier limit
N/E) – not established

Product Name: 281S Synthetic Heat Transfer Fluid

8. Exposure Controls and Personal Protection continued

Other Exposure Limits

Engineering Controls: If user operations generate an oil mist, determine if airborne concentrations are below the OSHA Permissible Limit (PEL) of 5 mg/m³ for mineral oil mist. If not, wear a NIOSH approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Personal Protective Equipment

Gloves: Nitrile or oil resistant gloves

Protective Clothing: Wear impervious protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Users should determine acceptable performance characteristics of protective clothing. Consider physical requirements and other substances present when selecting protective clothing.

Eye Protection: Wear eye protection such as safety glasses, chemical goggles, or face shields if engineering controls or work practices are not adequate to prevent eye contact.

Skin Protection: Wear impervious protective clothing to prevent skin contact.

Respiratory Protection: If user operations generate an oil mist, determine if airborne concentrations are below the OSHA Permissible Limit (PEL) of 5 mg/m³ or other applicable standards for mineral oil mist. If not, wear a NIOSH approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge

9. Physical and Chemical Properties

Flash Point: : 475°F (246°C) ASTM D-92 C.O.C method

Specific Gravity: 0.827

Upper Flammable Limit (UEL): Not Determined

Lower Flammable Limit (LEL): Not Determined

Vapor Pressure: Not Determined

Vapor Density (air =1): >1

Percent Volatile: Negligible

Evaporation Rate: Not Determined

pH: Not Applicable

Boiling Point: >600°F (>315°C)

Melting Point: Not Applicable

Appearance: Blue color liquid

Odor: mild odor

Solubility in Water: Negligible

The above data are typical values and do not constitute a specification. Vapor pressure data are calculated unless otherwise specified

Product Name: 281S Synthetic Heat Transfer Fluid

10. Stability and Reactivity

Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Materials to Avoid: Strong acids, bases and oxidizers

Polymerization: Not expected to occur during conditions of normal use.

Thermal Decomposition: Not determined

Conditions to Avoid: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

11. Toxicological Information:

Routes of Exposure: Skin, eyes, ingestion and inhalation

Target Organs: Skin, eyes and upper respiratory tract

Acute Exposure

Ingestion: Ingestion may cause a laxative effect. This material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

Eye Contact: Slight irritation and redness to eyes

Skin Contact: Contact with skin is not expected to cause prolonged or significant irritation

Inhalation: Contains a synthetic hydrocarbon base oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit.

Dermal Sensitization: Not expected to be a dermal sensitizer

Inhalation Sensitization: Not expected to be a inhalation sensitizer.

Carcinogenicity: This product does not contain any of the chemicals listed on the United States National Toxicology Program Annual Reports on Carcinogens, The International Agency for Cancer Research Monographs and United State's Occupational Safety and Health Administrations 29CFR 1910.10 Subpart Z List.
Ames Test: Negative

Additional Toxicological Information:

1-Decene Homopolymer, Hydrogenated CAS 68037-01-4

Acute Oral Toxicity: LD50 / rat / > 5000 mg/kg / based on data for a similar material.

Acute Dermal Toxicity: LD50 / rat / > 2000 mg/kg

Acute Inhalation Toxicity: LC50 / not known / based on data for a similar material

Product Name: 281S Synthetic Heat Transfer Fluid

12. Environmental and Ecological Information

Ecotoxicity

1-Decene Homopolymer, Hydrogenated CAS 68037-01-4

This material is not expected to be harmful to aquatic organisms.

- 96 hour(s) / LC50 / fathead minnow (*Pimephales promelas*) / >750 mg/l
- 48 hour(s) / EC50 / water flea (*Daphnia magna*) / 190 mg/l
- 96 hour(s) / LC50 / Rainbow trout (*Salmo gairdneri*) / >1000 mg/l

Environmental Fate

Biodegradation: This material is not expected to be readily biodegradable

Bioaccumulation: Not established

Water Class Hazard (Germany): Water Hazard Class 1 according to appendix 4 VwVwS dated 27.7.2005

13. Disposal Considerations

Waste Handling and Disposal: This product in its neat state when discarded or disposed of is not a hazardous waste according to United States Federal Regulations 40CFR 261.4 (b)(4). Dispose of product in accordance with all applicable National, Federal, State, Provincial and local laws and regulations. Under RCRA, it is the responsibility of the user of this product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Do not re-use empty containers

14. Transport Information

US DOT Classification Non-Bulk: Not regulated as a hazardous material or dangerous good for transportation.

US DOT Classification Bulk: Not regulated as a hazardous material or dangerous good for transportation.

IMDG Classification: Not regulated as a hazardous material or dangerous good for transportation.

IATA/ICAO Classification: Not regulated as a hazardous material or dangerous good for transportation

Product Name: 281S Synthetic Heat Transfer Fluid

14. Transport Information continued

ADR: Not regulated as a hazardous material or dangerous good for transportation.

ADNR: Not regulated as a hazardous material or dangerous good for transportation.

RID: Not regulated as a hazardous material or dangerous good for transportation.

Canadian TDG: Not regulated as a hazardous material or dangerous good for transportation

15. Regulatory Information

Hazard Symbols:



Xi Irritant

EC Classification: Not classified as dangerous under EC criteria

EC Risk Phrase: Not classified

EC Safety Phrase: Not classified

EINECS: All components listed or polymer exempt



GHS Symbol:

Health Hazards: May cause irritation by skin and eye contact. May cause irritation of upper respiratory tract if vapors are inhaled

Product Name: 281S Synthetic Heat Transfer Fluid

TSCA Inventory: All of the components in this material are on the US TSCA Inventory or are exempt.

State of California Proposition 65: This product does not contain any of the chemical listed on the State of California's Proposition 65 List for chemicals classified as potential reproductive or cancer causing agents.

US EPA SARA Title III and CERCLA Listings and Reportable Quantities

This product does not contain any of the chemicals listed on the US EPA's SARA Title III and CERCLA Lists.

US EPA Section 311/313 Classifications

None

US EPA Section 313 Chemicals

This product does not contain any of the chemicals listed on the US EPA's Section 313 List.

US Tariff Heading Number: 3403.19.0000

Schedule B Number: 3403.19.0000

Other Regulations:

Canada: All of the ingredients of this product are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substance List

Canadian WHMIS Classifications and Symbols: This product is not considered to be a WHMIS hazard

EEC: All components are in compliance with the EC Seventh Amendment Directive 92/32/EEC

16. Other Information

For additional information call +1 314-865-4100 (outside the US and Canada) or 1-800-325-9962 inside the United States and Canada.

Although the information and recommendations set forth herein (hereafter referred to as information) are presented in good faith and believed to be accurate and factual as of the date hereof, Schaeffer Mfg. Company makes no representation as to the completeness or accuracy thereof. Information is supplied upon the condition that the person receiving the same will make their own determination as to its safety and suitability for their purposes prior to use. In no event will Schaeffer Mfg. Company be responsible for damages of any natures whatsoever resulting from the use or reliance upon information. **No representation or warranty, either expressed or implied, of merchantability or fitness for a particular purpose is made with respect to information of the product to which the information refers. Compliance with all applicable federal, state, and local regulations remains the responsibility of the user.**