SAFETY DATA SHEET

1. Identification

Identification

Product name: PARATHERM™ HT

Additional identification

Chemical name: Terphenyl, hydrogenated

Recommended use and restriction on use

Recommended use: Heat Transfer Fluid
Restrictions on use: None identified.

Details of the supplier of the safety data sheet

Supplier

Company Name: PARATHERM A DIV. OF THE LUBRIZOL CORPORATION
Address: 2009 Renaissance Boulevard
King of Prussia, PA 19406 US
Telephone: 610-941-4900

Emergency telephone number:
FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1)703 527 3887, OR WITHIN USA 800 424 9300

2. Hazard(s) identification

Hazard Classification

Not classified

Label Elements:

Hazard Symbol: No symbol
Signal Word: No signal word.
Hazard Statement: not applicable
Precautionary Statements: not applicable
Other hazards which do not result in GHS classification: None identified.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>61788-32-7</td>
<td>70 - 80%</td>
</tr>
<tr>
<td>Terphenyl</td>
<td>26140-60-3</td>
<td>5 - 10%</td>
</tr>
</tbody>
</table>

4. First-aid measures

Ingestion: Treat symptomatically. Get medical attention.
Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Skin Contact: Wash with soap and water. If skin irritation occurs, get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses.

Most important symptoms/effects, acute and delayed

Symptoms: See section 11.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: CO2, dry chemical, foam, water spray, water fog.

Unsuitable extinguishing media: Not determined.

Specific hazards arising from the chemical: See section 10 for additional information. Water may cause splattering.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No data available.

Special protective equipment for fire-fighters: Recommend wearing self-contained breathing apparatus.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Ventilate area if spilled in confined space or other poorly ventilated areas.

Methods and material for containment and cleaning up: Dike far ahead of larger spill for later recovery and disposal. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material.

Environmental Precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid environmental contamination.
8. Exposure controls/personal protection

Control Parameters:

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>Ceiling</td>
<td>1 ppm, 9 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>TWA</td>
<td>0.5 ppm, 5 mg/m³</td>
<td>US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)</td>
</tr>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>TWA</td>
<td>0.5 ppm</td>
<td>US. ACGIH Threshold Limit Values (02 2012)</td>
</tr>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>REL</td>
<td>0.5 ppm, 5 mg/m³</td>
<td>US. NIOSH: Pocket Guide to Chemical Hazards (2010)</td>
</tr>
<tr>
<td>Terphenyl</td>
<td>Ceiling</td>
<td>1 ppm, 9 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
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<td>Terphenyl</td>
<td>Ceiling</td>
<td>5 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (02 2012)</td>
</tr>
</tbody>
</table>

Appropriate engineering controls: No special requirements under ordinary conditions of use and with adequate ventilation. Use material in well ventilated area only. Adequate ventilation should be provided so that exposure limits are not exceeded.

Individual protection measures, such as personal protective equipment

General information: Use personal protective equipment as required.

Eye/face protection: If contact is likely, safety glasses with side shields are recommended.

Skin Protection
Hand Protection: Suitable gloves can be recommended by the glove supplier.

Other: Long sleeve shirt is recommended.

Respiratory Protection: Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator.

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state: liquid
Form: liquid
**Color:** Pale yellow

**Odor:** Characteristic

**Odor threshold:** No data available.

**pH:** No data available.

**Freezing point:** No data available.

**Boiling Point:** > 658 °F (348 °C)

**Flash Point:** > 356 °F (180 °C) (ASTM D93 (Pensky-Martens (A and B Closed Cup)))

**Evaporation rate:** No data available.

**Flammability (solid, gas):** No data available.

**Upper/lower limit on flammability or explosive limits**

- **Flammability limit - upper (%):** No data available.
- **Flammability limit - lower (%):** No data available.

- **Explosive limit - upper (%):** No data available.
- **Explosive limit - lower (%):** No data available.

**Vapor pressure:** 0.00174 hPa (20 °C 68 °F)

**Vapor density:** No data available.

**Relative density:** 1.001 - 1.00777 °F (25 °C)

**Solubility(ies)**

- **Solubility in water:** Insoluble in water
- **Solubility (other):** No data available.

**Partition coefficient (n-octanol/water):** No data available.

**Auto-ignition temperature:** 705 °F (374 °C)

**Decomposition temperature:** No data available.

**Viscosity:** 25 - 32 mm2/s (100.0 °F (37.8 °C))

**Other information**

### 10. Stability and reactivity

**Reactivity:** No data available.

**Chemical Stability:** Material is stable under normal conditions.

**Possibility of hazardous reactions:** Will not occur.

**Conditions to avoid:** Do not expose to excessive heat, ignition sources, or oxidizing materials.

**Incompatible Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide, and other products of incomplete combustion.

### 11. Toxicological information

**Information on likely routes of exposure**

- **Inhalation:** No data available.
- **Ingestion:** No data available.
- **Skin Contact:** No data available.
Eye contact: No data available.

Information on toxicological effects

Acute toxicity

Oral
Product: ATEmix > 10,000 mg/kg.

Dermal
Product: Not classified for acute toxicity based on available data.

Inhalation
No data available

Skin Corrosion/Irritation:
Terphenyl, hydrogenated
Classification: Not irritating (Literature); Rabbit. Not expected to be a primary skin irritant.

Terphenyl
Classification: Not irritating (Literature); Rabbit. Not expected to be a primary skin irritant.

Serious Eye Damage/Eye Irritation:
Terphenyl, hydrogenated
Classification: Not irritating (Literature); Rabbit.

Respiratory sensitization:
No data available

Skin sensitization:
No data available

Specific Target Organ Toxicity - Single Exposure:

Aspiration Hazard:
No data available

Other effects:
Terphenyl, hydrogenated
Liver

Chronic Effects

Carcinogenicity:
No data available

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

No carcinogenic components identified

Germ Cell Mutagenicity:
No data available
Reproductive toxicity:  
No data available

**Specific Target Organ Toxicity - Repeated Exposure:**

No data available

### 12. Ecological information

#### Ecotoxicity

<table>
<thead>
<tr>
<th>Fish</th>
<th>Toxicity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>LC 50 (Fathead Minnow, 4 h): &gt; 1,000 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC 50 (Bluegill Sunfish, 4 h): &gt; 100 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC 50 (Rainbow Trout, 4 h): &gt; 1,000 mg/l</td>
<td></td>
</tr>
<tr>
<td>Terphenyl</td>
<td>LC 50 (Fathead Minnow, 4 h): &gt; 7.5 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOEC (Fathead Minnow, 4 h): &gt; 1.5 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC 50 (Rainbow Trout, 4 h): &gt; 27 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOEC (Fathead Minnow, 4 h): &gt; 10 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

#### Aquatic Invertebrates

<table>
<thead>
<tr>
<th>Invertebrates</th>
<th>Toxicity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>No toxicity at solubility limit.</td>
<td></td>
</tr>
<tr>
<td>Terphenyl</td>
<td>EC 50 (Water flea (Daphnia magna), 2 d): 0.007 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EC 50 (Water flea (Daphnia magna), 2 d): 0.022 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EC 50 (Water flea (Daphnia magna), 2 d): 0.066 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOEC (Water flea (Daphnia magna), 2 d): 0.006 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOEC (Water flea (Daphnia magna), 2 d): 0.011 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

#### Toxicity to Aquatic Plants

<table>
<thead>
<tr>
<th>Plants</th>
<th>Toxicity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>LC 50 (Green algae (selenastrum capricomutum), 4 h): 56 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

#### Toxicity to soil dwelling organisms

No data available

#### Sediment Toxicity

No data available

#### Toxicity to Terrestrial Plants

No data available

#### Toxicity to Above-Ground Organisms

No data available

#### Toxicity to microorganisms

<table>
<thead>
<tr>
<th>Microorganisms</th>
<th>Toxicity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>NOEC (Sludge, 0.1 h): 103 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC 50 (Sludge, 0.1 h): 103 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

#### Persistence and Degradability

Biodegradation

No data available

#### Bioaccumulative Potential

Bioconcentration Factor (BCF)

No data available

#### Partition Coefficient n-octanol / water (log Kow)

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terphenyl, hydrogenated</td>
<td>Log Kow: 5.5 (calculated)</td>
</tr>
</tbody>
</table>
Mobility:  
No data available

Other Adverse Effects:  
No data available.

13. Disposal considerations

Disposal instructions:  
Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Dispose of packaging or containers in accordance with local, regional, national and international regulations. Empty container contains product residue which may exhibit hazards of product.

Contaminated Packaging:  
Container packaging may exhibit hazards.

14. Transport information

DOT
UN Number:  UN 3082
UN Proper Shipping Name:  Environmentally hazardous substance, liquid, n.o.s.(Terphenyl)
Transport Hazard Class(es)  9
Class:
Label(s):  9
Packing Group:  III
Marine Pollutant:  Yes
Special precautions for user:  None established

IMDG
UN Number:  UN 3082
UN Proper Shipping Name:  ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Terphenyl)
Transport Hazard Class(es)  9
Class:
Label(s):  9
EmS No.:  F-A, S-F
Packing Group:  III
Marine Pollutant:  Yes
Limited quantity  5.00L
Excepted quantity  E1
Special precautions for user:  None established
IATA

UN Number: UN 3082
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.(Terphenyl)
Transport Hazard Class(es):
  Class: 9
  Label(s): 9MI
Marine Pollutant: Yes
Packing Group: III
Limited quantity: 30.00KG

Excerpted quantity: E1

Environmental Hazards: Marine Pollutant
Special precautions for user: None established

Other information:
  Passenger and cargo aircraft: Allowed.
  Cargo aircraft only: Allowed.

Transport in bulk according to Annex II of MARPOL and the IBC Code
None known.

The DOT shipping information in this section is based on a bulk container. Please review the accompanying shipping papers for the correct shipping descriptions based on the size of the package. Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. During transportation, steps must be taken to prevent load shifting or materials falling, and all relating legal statutes should be obeyed. Review classification requirements before shipping materials at elevated temperatures.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4)
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 311 Classifications
None known.

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification
None present or none present in regulated quantities.

SARA 313 (TRI Reporting)
None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.
Inventory Status

Australia (AICS)
All components are in compliance with chemical notification requirements in Australia.

Canada (DSL/NDSL)
All substances contained in this product are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List (DSL) or are exempt.

China (IECSC)
All components of this product are listed on the Inventory of Existing Chemical Substances in China.

European Union (REACH)
To obtain information on the REACH compliance status of this product, please e-mail REACH@SDSInquiries.com.

Japan (ENCS)
All components are in compliance with the Chemical Substances Control Law of Japan.

Korea (ECL)
All components are in compliance in Korea.

New Zealand (NZIoC)
All components are in compliance with chemical notification requirements in New Zealand.

Philippines (PICCS)
All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

Switzerland (SWISS)
All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

Taiwan (TCSCA)
All components of this product are listed on the Taiwan inventory.

United States (TSCA)
All substances contained in this product are listed on the TSCA inventory or are exempt.

The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.

16. Other information, including date of preparation or last revision

HMIS Hazard ID

Health 0
Flammability 1
Physical Hazards 0

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect
NFPA Hazard ID

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 01/18/2017
Version #: 2.1
Source of information: Internal company data and other publically available resources.
Further Information: Contact supplier (see Section 1)
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