Safety Data Sheet
According to OSHA HCS 2012 (29 CFR 1910.1200)

MultiTherm 550® Heat Transfer Fluid

1. Product and Company Identification

Product Identifier: MultiTherm 550®
Product Description: Heat Transfer Fluid
Manufacturer: MultiTherm LLC
11 General Warren Blvd., Malvern, PA 19355 USA
Emergency Contact: Mark Smith
Emergency Phone: (484) 433-1787
Customer Service: (610) 408-8361

2. Hazards Identification

GHS CLASSIFICATIONS:
Health: Aspiration Hazard, Category 1

GHS Label: Health Hazard

Signal Word: Danger
Hazard Statements: May be fatal if swallowed and enters airways.
Precautionary Statements
Response: IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
Storage: Store locked up.
Disposal: Dispose of contents and container accordance with all local, regional, national and international regulations.
Supplemental Label: Avoid contact with skin and clothing. Wash thoroughly after handling.
Hazards not otherwise classified: Prolonged or repeated contact may dry skin, cause irritation or dermatitis.

3. Composition / Information on Ingredients

Substance/Mixture: Substance

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>%</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthetic Alkylate(s)</td>
<td>*</td>
<td>Proprietary</td>
</tr>
<tr>
<td>Lubricant Additive</td>
<td>*</td>
<td>Proprietary</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

4. First Aid Measures

Eyes: Remove any contact lenses. Flush eye with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists.
Skin: Immediately wash skin with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important Symptoms / Effects, acute and delayed

Eyes: May cause eye irritation.

Skin: Prolonged or repeated contact may cause redness, irritation or dermatitis.

Ingestion: May cause gastrointestinal irritation, nausea or dermatitis.

Inhalation: May cause irritation of nose, mucous membranes and throat.

5. Fire Fighting Measures

Extinguishing media
Suitable extinguishing media: Use dry chemical, CO2, foam. For large fires use foam or water spray (fog).

Unsuitable extinguishing: Do not use high pressure water jet as it may spread the fire.

Specific hazard arising from the chemical: In a fire or if heated, a pressure increase will occur and the container may burst.


Special protective actions for Fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Sensitive to static discharge: Yes

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
**Environmental precautions:** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewer, waterways, soil or air).

**Methods and materials for containment and cleaning up**

**Small spill:**
Remove all possible sources of ignition. Stop leak if without risk. Move containers from spill area. Contain and soak up spill with absorbent material. Place residues in a suitable, sealed and labeled container. Dispose of via a licensed waste disposal contractor.

**Large spill:**
Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillages with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Reclaim into recovery or salvage drums or vacuum truck for proper disposal. Avoid mixing spilled material with other chemicals or debris. Avoid contact with skin and eyes. Do not breathe vapors. Evacuate area of all non-essential personnel. Avoid runoff into storm sewers and ditches which lead to waterways. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

**7. Handling and Storage**

<table>
<thead>
<tr>
<th>General Procedures:</th>
<th>Handle in accordance with good industrial hygiene and safety practices.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precaution for safe handling:</td>
<td>Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Avoid breathing (dust, vapor, mist, gas). Avoid contact with eyes, skin and clothing. Spills will produce very slippery surfaces. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.</td>
</tr>
<tr>
<td>Conditions for safe storage:</td>
<td>Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.</td>
</tr>
<tr>
<td>Storage temperature:</td>
<td>Ambient.</td>
</tr>
<tr>
<td>Storage pressure:</td>
<td>Atmospheric.</td>
</tr>
<tr>
<td>Electrostatic Accumulation Hazard:</td>
<td>Bond and ground during loading, unloading and transferring material to prevent electrostatic accumulation.</td>
</tr>
<tr>
<td>Comments:</td>
<td>Recommended storage container materials are carbon steel, baked epoxy or aluminum. Do not cut or weld used, empty containers retaining vapors or residual product.</td>
</tr>
</tbody>
</table>

“Empty” containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. “Empty” drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioned. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

**8. Exposure Controls / Personal Protection**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
</tr>
</thead>
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Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: Mechanical ventilation is recommended when working at elevated temperatures. Eye washes and showers for emergency use.

Eye/Face Protection: Wear safety glasses with side shields (or goggles) or a face shield.

Skin/Hand Protection: Use protective clothing, sleeves, boots, face protection and chemical resistant gloves. Use extra precautions when working with heated materials.

Respiratory Protection: Use appropriate NIOSH approved respirator if necessary or risk of insufficient ventilation.

Protective Clothing: Wear full protective clothing and chemical resistant gloves to prevent prolonged skin contact.

Work hygienic practices: Wash hands, forearms and face before eating, drinking, smoking and using the restroom. Launder contaminated clothing before re-use.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator’s use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer’s instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear/faint yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available</td>
</tr>
<tr>
<td>Pour point</td>
<td>-45°C (-49°F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>304°C to 800°C (579°F to 1472°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Cleveland Closed cup: 199°C (390°F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower/upper explosive limits</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt;0.011 kPa (0.08 mm Hg) [room temperature]</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.876</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in hydrocarbons, NIL in water</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>&gt;360°C (680°F)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Kinematic (40°C (104°F)): 0.190 cm2/s (19 cSt)</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not available</td>
</tr>
<tr>
<td>n-octanol/water</td>
<td>Not available</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Polymerization</td>
<td>None expected</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Excessive heat, sparks or open flame</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Strong oxidizers</td>
</tr>
</tbody>
</table>
11. Toxicological Information

Information on toxicological effects

Acute toxicity: \( \text{LD}_{50} \) Oral, >5000 mg/kg
Irritation/Corrosion: Not a primary irritant.
Sensitization: Not available.
Mutagenicity: Not available.
Carcinogenicity: Not available.

**Conclusion/Summary:** The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346.

Reproductive toxicity: Not available.
Teratogenicity: Not available.
Specific target organ toxicity:
- **Single Exposure:** Not available.
- **Repeated exposure:** Not available.

Aspiration hazard: Not available.

Information on the likely Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- **Eye contact:** No known significant effects or critical hazards.
- **Inhalation:** No known significant effects or critical hazards.
- **Skin contact:** Repeated or prolonged skin exposure may cause dermatitis.
- **Ingestion:** May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- **Eye contact:** No specific data.
- **Inhalation:** No specific data.
- **Skin contact:** Adverse symptoms may include irritation, dryness and cracking.
- **Ingestion:** Adverse symptoms may include nausea or vomiting.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- **Potential immediate effects:** Not available.
- **Potential delayed effects:** Not available.

Long term exposure

- **Potential immediate effects:** Not available.
- **Potential delayed effects:** Not available.

Potential chronic health effects

- **General:** Prolonged or repeated contact can lead to irritation, cracking and or dermatitis.
- **Carcinogenicity:** No known significant effects or critical hazards.
- **Mutagenicity:** No known significant effects or critical hazards.
- **Teratogenicity:** No known significant effects or critical hazards.
- **Developmental effects:** No known significant effects or critical hazards.
- **Fertility effects:** No known significant effects or critical hazards.

Numerical measures of toxicity

- **Acute toxicity estimates:** Not available.
12. Ecological Information

Environmental Data: Ecotoxicological data have not been determined specifically for this product. The information below is given based on knowledge of the components.

Ecotoxicological Information: This product may be toxic to aquatic life.

Bioaccumulation/Accumulation: Expected to have a very slow rate of bioaccumulation.

Distribution: Insoluble in water.

Notes: Not Available.

13. Disposal Considerations

DISPOSAL METHOD: Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

EMPTY CONTAINER: Clean container thoroughly and dispose to licensed disposal contractor. Do not weld, cut, or braze empty containers, or allow product residue to come in contact with other sources of ignition as they may contain residue which could ignite.

RCRA/EPA WASTE INFORMATION: This product does not meet the criteria of a hazardous waste as defined in 40 CFR 261 as it does not exhibit the characteristics of hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

14. Transport Information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
</table>

Special precautions for user

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78

And the IBC Code:

15. Regulatory Information

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: This material is listed or exempt.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed.
Clean Air Act Section 602 Class I Substances: Not listed.
Clean Air Act Section 602 Class II Substances: Not listed.
DEA List I Chemicals (Precursor Chemicals): Not listed.
DEA List II Chemicals (Essential Chemicals): Not listed.

SARA 302/304

Composition/information on ingredients: No products were found.
SARA 304 RQ: Not applicable.

SARA 311/312

Classification: Immediate (acute) health hazard.
State regulations
Massachusetts: This material is not listed.
New York: This material is not listed.
New Jersey: This material is listed.
Pennsylvania: This material is not listed.
California Prop. 65: This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International lists
National Inventory
Australia: This material is listed or exempted.
Canada: This material is listed or exempted.
China: This material is listed or exempted.
Europe: This material is listed or exempted.
Japan: This material is listed or exempted.
Malaysia: Not determined.
New Zealand: This material is listed or exempted.
Philippines: This material is listed or exempted.
Republic of Korea: This material is listed or exempted.
Taiwan: This material is listed or exempted.

16. Other Information
Reason for Issue: Updated to GHS Format with GHS classification

HMIS RATING

<table>
<thead>
<tr>
<th></th>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
<th>PERSONAL PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

NFPA CODES

<table>
<thead>
<tr>
<th></th>
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<th>1</th>
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</thead>
</table>

History
Date of issue/Date of revision: 2017 April 14th
Revision: Final

Key to abbreviations:
ATE = Acute Toxicity Estimate; ACGIH = American Conference of Governmental Industrial Hygienists; BCF = Bioconcentration Factor; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; IBC = Intermediate Bulk Container; IMDG = International Maritime Dangerous Goods; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; LogPow = logarithm of the octanol/water partition coefficient; MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = Marine pollution); NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act;
Notice to reader

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