Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

MultiTherm 503® Heat Transfer Fluid

1. Product and Company Identification

Product Identifier: **MultiTherm 503®**
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, Acute Inhalation Toxicant – Category 4

GHS Label:



Signal Word: Danger

Hazard Statements: May be fatal if swallowed and enters airways. Harmful if inhaled.

Precautionary Statements

Response: Avoid breathing mist/vapours. Use only outdoors or in a well-ventilated area. IF SWALLOWED: Immediately call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage: Store locked up.

Disposal: Dispose of contents and container accordance with all local, regional, national and international regulations.

Physical/Chemical Health: No significant hazards. High-pressure injection under skin may cause serious damage. Airborne low-viscosity branched alkanes can affect lungs.

Environmental: No significant hazards.

Supplemental Label: Avoid contact with skin and clothing. Wash thoroughly after handling.

3. Composition / Information on Ingredients

Substance/Mixture: **Mixture**

Ingredient Name	Hazard Code(S)	%Weight	CAS Number
Dec-1-ene, dimers, hydrogenated	H304, H332	0-100	68649-11-6
Hydrogenated dimerization products of 1-decene and 1-dodecene	H304, H332, H413	0-100	151006-58-5

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

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

4. First Aid Measures

Eyes: Flush eye thoroughly with water. If irritation occurs, get medial assistance.

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. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. 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.

Symptoms & Effects

To Physician: Treat symptomatically. If ingested, material may be aspirated into the lungs and cuase chemical pheumonitis. Treat appropriately. Contact poison specialist if product has been ingested.

Specific Treatment: No Specific Treatment.

Medical Attention

Protection of First Aiders: No action should be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Note to Doctor: Aspiration during swallowing or vomiting may severely damage the lungs. If evacuation of stomach contents is necessary, use method least likely to cause aspiration.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media: Use dry chemical, CO_2 or alcohol-resistant foam. Water can be used to cool and protect product.

Unsuitable extinguishing: Do not use high pressure water jet, it will spread the fire.

Specific hazard arising from the chemical: When heated, hazardous gases may be released including: sulfur dioxide. A solid steam of water will spread the burning material. Material creates a special hazard because it floats on water. This material is harmful to aquatic life. Any fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. 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.

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. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. 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:	See section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See section 4 for First Aid Advice. 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". Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgement of the emergency responders.
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). Material may be harmful to the environment if released in large quantities.

Methods and Materials for containment and cleaning up

Reference Section 8:	Follow all protective equipment recommendations provided in Section 8.
Spill Control Measures:	Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Dispose of according to Federal, State, Local, or Provincial regulations. Used fluid should be disposed of at a recycling center.
Containment & clean up:	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). 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

General Procedures:	Handle in accordance with good industrial hygiene and safety practices.
Precaution for safe handling:	Avoid breathing mists or vapors. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static

Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity)

Conditions for safe storage: State Accumulator: This material is a static accumulator. The container choice, for example storage vessel, may effect static accumulation and dissipation. 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.

"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 reconditioner. 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

Chemical Name	Occupational Exposure Limits	Value
Dec-1-ene, dimers, hydrogenated	Aerosols (thoracic fration) TWA	1 mg/m^3
Hydrogenated dimerization products of 1-decene and 1-dodecene	Aerosols (thoracic fration) TWA	1 mg/m^3

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: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider: Adequate ventilation should be provided whenever the material is heated or mists are generated.

Personal Protection: Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Eye/Face Protection: If contact is likely, safety glasses with side shields are recommended. However, the use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves.

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

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).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

9. Physical and Chemical Properties

Physical state:	Liquid
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not available
pH:	Not available
Melting point:	Not available
Pour point:	-65°C (-85°F)
Boiling point:	267°C to 800°C (512°F to 1472°F)
Flash point:	Cleveland Closed cup: 154°C (310°F)
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Lower/upper explosive limits:	Not available
Vapor pressure:	**<**0.013 kPa (0.1 mm Hg) @ 20°C
Vapor density:	Not available
Relative density:	0.800
Solubility:	Neglibible in water
Auto-ignition temperature:	324°C (615°F)
Decomposition temperature:	Not available
Viscosity:	Kinematic (40°C (104°F)): 0.051 cm2/s (5.1 cSt)
Partition coefficient n-octanol/water:	Not available

10. Stability and Reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable under normal circumstances.
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	High energy sources of ignition.
Incompatible materials:	Strong oxidizing agents.
Hazardous decomposition products:	Under normal conditions of storage and use, material does not decompose.

11. Toxicological Information

Hazard Class Conclusion / Remarks

Inhalation:	Acute Toxicity: (Rat) 4 hour(s) LC50 1170 mg/m3 Moderately toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403. Irritation: No end point data for material. Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion:	Acute Toxicity (Rat): LD50 > 5000 mg/kg Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401 420 423
Skin:	Acute Toxicity (Rat): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials. Test(s) eqivalent or similar to OECD Guideline 402 Skin Corrosion/Irritation (Rabbit): Data available. Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404

The following ingredients are cited on the lists below: None

REGULATORY LISTS SEARCHED

1 = NTP CARC	3 = IARC 1	4 = IARC 2A
2 = NTP SUS	5 = IARC 2B	6 = OSHA CARC

Eye: Eye Damage/Irritation (Rabbit): Data available. May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405

Sensitization: Respiratory Sensitization: No end point data for material. Not expected to be a respiratory sensitizer.

Skin Sensitization: Data available. Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent to OECD Guideline 406 429

Aspiration: Data available. May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material.

Germ Cell Mutagenicity: Data available. Not expected to be a germ cell mutagen. Based on test data for structurally similar materials. Test(s) equivalent to OECD Guideline 471 473 474 476

Carcinogenicity: No end point data for material. Not expected to cause cancer.

Reproductive Toxicity: Data available. Not expected to be a reproductive toxicant. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 415

Lactation: No end point data for material. Not expected to cause harm to breast-fed children.

Specific Target Organ Toxicity (STOT)

Single Exposure: No end point data. Not expected to cause organ damage from a single exposure.

Repeated Exposure: Data available. Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 407 408

OTHER INFORMATION

Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema Low-viscosity branched alkanes: Acute exposures to high aerosol levels are harmful to lungs.

12. Ecological Information

Aquatic Toxicity

ECOTOXICITY Not expected to be harmful to aquatic organisms. Not expected to demonstrate chronic toxicity to aquatic organisms.

PERSISTENCE AND DEGRADABILITY

Biodegradation: Expected to be inherently biodegradable

Ecotoxicity Data

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL50 1000 mg/l
Aquatic - Acute Toxicity	96 hour(s)	Oncorhynchus	LL50 1000 mg/l
Aquatic - Acute Toxicity	72 hour(s)	Alga	ErL50 1000 mg/l
Aquatic - Acute Toxicity	72 hour(s)	Alga	NOELR 1000 mg/l

13. Disposal Considerations

Considerations: Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal

Disposal recommendations: Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

Empty Container Warning: Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

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 hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

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

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.

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: Not available.

15. Regulatory Information

This material is considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing and/or notification on the following chemical inventories : AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302 : This material contains no extremely hazardous substances.

SARA

(311/312) REPORTABLE HAZARD CATEGORIES: Immediate Health.

(313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

REGULATORY LISTS SEARCHED (Code key: CARC=Carcinogen; REPRO=Reproductive)

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

16. Other Information

HMIS & NFPA Hazard ID: Health: 1 Flammability: 1 Reactivity: 0

H-Codes Keys Contained in Section 3

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H332: Harmful if inhaled; Acute Tox Inh, Cat 4

H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4

History

Date of issue/Date of revision: 2017 April 14thth

Revision: Final

Key to addreviations:

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; CFR = Code of Federal Regulations; DOT = United States Department of Transportation; 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); N/A = Not Applicable; NE = Not Established; N/D = Not Determined; NIOSH = National Institue for Occupational Safety and Health; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); RTK = Right-to-Know; SARA = Superfund Amendments and Reauthorization Act or Short-term Exposure Limit; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TSCA = Toxic Substances Control Act; TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; UN = United Nations; WHMIS = Worker Hazardous Materials Information System (Canada)

Notice to reader

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