Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

MultiTherm FF-1 Flushing Fluid

1. Product and Company Identification

Product Identifier: **MultiTherm FF-1®**
Product Description: Flushing/Cleaning 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:

GHS Rating(s): No Classified Hazards
GHS Label: No Classified Hazards

Signal Word: Not Applicable

Precautionary Statements

Response: Obtain Special Instructions Before Use. Do Not Handle Until All Safety Precautions Are Understood. Use Personal Protective Equipment As Required.
Storage: Store locked up.
Disposal: Dispose of contents and container accordance with all local, regional, national and international regulations.

3. Composition / Information on Ingredients

Substance/Mixture: **Substance**

Ingredient Name	%	CAS Number
Distillates, Petroleum, Hydrotreated Heavy Naphthenic	100.0	64742-52-5

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

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

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
Occupational exposure limits, if available, are listed in Section 8.

4. First Aid Measures

Eyes: Immediately 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 20 minutes. Get medical attention.

Ingestion: Wash out mouth with water. 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. Do not induce vomiting unless

directed to do so by medical personnel. 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. Get medical attention if symptoms occur.

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. Maintain an open airway. Get medical attention if symptoms occur.

Symptoms & Effects / Medical Attention

To Physician: Treat symptomatically. Contact poison specialist if product has been ingested.

Specific Treatment: No Specific Treatment.

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 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 stream of water will spread the burning material. Material creates a special hazard because it floats on water. This 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.

Hazardous thermal Decomposition products may include the following material:

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. 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: 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.

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). 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: Put on appropriate personal protective equipment (see section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, keep lid tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Conditions for safe storage: 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. Odorous and toxic fumes may form from the decomposition of this product if stored at temperatures in excess of 113 deg F (45 deg C) for extended periods of time or if heat sources in excess of 250 deg F (121 deg C) are used. Store away from incompatible materials. See section 10 for incompatible materials.

"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	ACGIH	OSHA
Distillates, petroleum, hydrotreated heavy Nappthenic	TWA: 5 mg/m^3	TWA: 5 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: Material should be handled in enclosed vessels and equipment, in which case general room ventilation should be sufficient. Local exhaust ventilation should be used at points where dust, mist, vapors or gases can escape into the room air. No special requirements under ordinary conditions of use and with adequate ventilation.

Enviromental Exposure Controls: General room ventilation should be satisfactory. Local exhaust ventilation may be necessary if misting is generated.

Hygeine 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.

Eye/Face Protection:	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:	Butyl rubber. Use nitrile or neoprene gloves. Use good industrial hygiene practices. In case of skin contact, wash hands and arms with soap and water. Use caution when opening manway covers of storage and transportation containers. 3-nitroaniline crystals may be present on the interior surface of these openings. 3-nitroaniline is toxic by dermal exposure.
Respiratory Protection:	Use a properly fitted air purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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:	B&C	
Odor:	Characteristic of Petroleum	
Odor threshold:	No data available	
pH:	No data available	
Freezing point:	No data available	
Boiling point:	271°C (520°F)	
Flash point:	Cleveland Closed cup:	160°C (320°F)
Evaporation rate:	No data available	
Flammability (solid, gas):	Not applicable	
Lower/upper explosive limits:	No data available	
Vapor pressure:	**<**0.13 kPa (<1 mm Hg)	
Vapor density (air=1):	>1	
Relative density:	0.91	
Solubility:	Negligible, 0-1%	
Auto-ignition temperature:	343°C (650°F)	
Decomposition temperature:	Not determined	
Viscosity:	Kinematic @ 40°C: 21 cSt Kinematic @ 100°C: 4 cSt	
Partition coefficient n-octanol/water:	No data available No data available	

10. Stability and Reactivity

Reactivity:	No data available.
Chemical stability:	Stable under normal circumstances.
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid:	Temperatures above the high flashpoint of this combustible material in combination with sparks, open flames, or other sources of ignition. Moisture (will lead to product performance degradation).

Incompatible materials:	Strong oxidizing agents.
Hazardous decomposition products:	Carbon monoxide, Smoke, Sulfur Oxides, Aldehydes, and other petroleum decomposition products in the case of incomplete combustion. Oxides of nitrogen, phosphorus, calcium, copper, magnesium, sodium, and hydrogen sulfide may also be present.

11. Toxicological Information

Irritation/Corrosion:	No data available.
Sensitization:	No data available to indicate product or components may be a skin sensitizer.
Mutagenicity:	No data available to indicate product or any components present at greater than 0.1% is mutagenic or geotoxic.
Carcinogenicity:	Not expected to cause cancer. This product meets the IP-346 criteria of <3% PAH's and is not considered a carcinogen by the International Agency for Research on Cancer.
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:	No data available to indicate product or any components present are greater than 0.1% may cause birth defects.
Teratogenicity:	No data available.
Specific target organ toxicity:	
Single Exposure:	Non-hazardous under Specific Target Organ Systemic Toxicity Single Exposure category.
Repeated exposure:	Non-hazardous under Specific Target Organ Systemic Toxicity Repeated Exposure category.
Aspiration hazard:	No data available.

12. Ecological Information

Acute Aquatic ecotoxicity:	Non-hazardous under Aquatic Acute Environment category.
Chronic Aquatic ecotoxicity:	Non-hazardous under Aquatic Chronic Environment category.
Persistence and degradability:	Biodegrades slowly.
Bioaccumulative potential:	Bioconcentration may occur.
Mobility in soil:	This material is expected to have essentially no mobility in soil.
Results of PBT & vPvB assessment:	Not determined.
Other adverse effects:	No data available.
Mobility in soil:	
Soil/water partition Coefficient (k_{OC}):	Not available.
Other adverse effects:	No known significant effects or critical hazards.

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

Shipping Description:	If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil) International Maritime Dangerous Goods (IMDG)
DOT Compliance Note	U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)
DOT Compliance Requirement:	U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.

15. Regulatory Information

Regulatory Agency		**Chemical List Status**
(TSCA) Toxic Substance Control Act:	All components are either listed or not regulated US TSCA Inventory.	64742-52-5
WHMIS Hazard Class:	None	
Canada CPR:	This product has been classified in accordance with the hazard criteria Controlled Products Regulations (CPR) and the SDS contains all the info Required by the Regulations.	
CERCLA Sections 302, 313, 372:	This material does not contain reportable chemicals.	
311, 312:	Acute Health Hazard: No Pressure Hazard: No Fire Hazard: No Chronic Health Hazard: No Reactive Hazard: No	
New Jersy Right to Know (NJ RTK)	This material does not contain reportable chemicals.	
Massachusetts Right to Know (MA RTK)	This material does not contain reportable chemicals.	
Pennsylvania Right to Know (PA RTK)	This material does not contain reportable chemicals.	
Rhode Island Right to Know (RI RTK)	This material does not contain reportable chemicals.	

16. Other Information

History

Date of issue/Date of revision: **2017 April 14th**

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, CFR = Code of Federal Regulations; DOT = United States Department of Transportation; 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; NIOSH = National Institute for Occupational Safety and Health; 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; 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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