



1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-780
MS-780M
DPMS T0416A
Vertrel XF

Product Use: Cleaning Solvent

MANUFACTURER/DISTRIBUTOR:

Miller-Stephenson Chemical
55 Backus Ave.
Danbury, Conn. 06810 USA
(203) 743-4447

Emergency Phone Number:
(800) 424-9300

2. HAZARDS IDENTIFICATION

GHS Hazard classification

Not a dangerous substance or mixture according to 29 CFR 1910.1200

GHS Label elements:

Pictogram: not required

Signal word: not required

Precautionary Statements

Do not pierce or burn, even after use.

Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

Other hazards which do not result in classification or are not covered by GHS

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Rapid evaporation of the product may cause frostbite.

Misuse of intentional inhalation abuse may lead to death without warning symptoms, due to cardiac effects.

3. INGREDIENTS

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	75 – 90
1,1,1,2-Tetrafluoroethane	811-97-2	10 – 25

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove to fresh air. Get medical attention if symptoms occur.

Eye: In case of contact, flush eyes with water. Get medical attention if irritation develops and persists.

Skin: Wash skin with water and soap after contact. Get medical attention if symptoms occur.

Oral: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: May cause cardiac arrhythmia. Inhalation may provoke the following symptoms: Dizziness.

Notes to Physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

5. FIRE FIGHTING MEASURES

Flammability: This product is not flammable. **Test Method:** Ignition distance test and Enclosed space ignition test.

Suitable Extinguishing Media: Water spray, Alcohol-resistant foam, Dry Chemical, Carbon Dioxide (CO₂).

Unsuitable extinguishing media: None known.

Specific hazards during fire-fighting: Containers may rupture under fire conditions. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Hydrogen fluoride, Carbonyl fluoride, Carbon oxides.

Special Fire Fighting Instruction: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool containers. Evacuate area. Self-contained breathing apparatus (SCBA) maybe required if a large amount of material is released under fire conditions. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up. Evacuate personnel, thoroughly ventilate area. In case of insufficient ventilation use wear suitable respiratory equipment.

Environmental precautions: Dike spill. Prevent material from entering sewers, waterways, or low areas. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillage cannot be contained.

Methods and materials for containment and clean up: If containers rupture or leak, evacuate the area and provide ventilation. Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area of large spill. Soak up with earth, sand, vermiculite or inert absorbent material. Place in a container for disposal according to local/national regulations (Section 13).

7. HANDLING AND STORAGE

Handling: Use in a well-ventilated area to avoid breathing vapors. Where ventilation is inadequate, use appropriate respiratory protection. Avoid contact with skin, eyes, or clothing. Wash thoroughly after handling. Take care to prevent spills, waste and minimize release to the environment.

Storage Conditions: Store in a clean, dry, well-ventilated place. Do not store near sources of heat, in direct sunlight or where temperatures exceed 52°C (125°F).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TLV(ACGIH)</u>	<u>PEL (OSHA)</u>
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	Not Established	Not Established
1,1,1,2-Tetrafluoroethane	Not Established	Not Established

Respiratory Protection: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Eye Protection: Avoid eye contact. Use chemical goggles or safety glasses with side shields.

Skin Protection: Avoid contact with skin. Wash skin after contact. Use gloves impervious to this material (eg. Viton) when prolonged or frequently repeated contact occurs. For special applications, we recommend clarifying the resistance to chemicals of the protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often.

Hygiene measures: Do not eat, drink or smoke when using this product. Do not breathe vapors or spray mist. Avoid contact with skin, eyes, or clothing. Wash exposed areas thoroughly after contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.	Percent Volatile by Volume: 100
Density: 1.58 g/cc @ 77°F/25°C	Vapor Pressure: 235 mmHg @ 77°F/25°C
Vapor Density (Air=1): N.A.	Solubility in H₂O: 0.10 - 0.14 g/l @ 68°F/20°C
pH Information: No data available	Evaporation Rate (CC14=1): N.A.
Form: Aerosol	Appearance: Clear & Colorless
Color: Colorless	Odor: Slight, ether-like

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: None known.

Material and Conditions to Avoid: None known.

Decomposition: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

1,1,1,2,2,3,4,5,5,5-Decafluoropentane

Information on likely routes of exposure: Inhalation, Skin contact, Ingestion, Eye contact

Acute Oral: LD50: > 5000 mg/kg in rats. Method: OECD Test Guideline 401

Acute Inhalation (vapor): 4 hour LC50: 114.428 mg/l in rats. Method: OECD Test Guideline 403

Acute Dermal: LD50: > 5000 mg/kg in rabbits. Method: OECD Test Guideline 402

Skin Corrosion/Irritation: No skin irritation in rabbits. Method: OECD Test Guideline 404

Serious Eye Irritation/ Eye Irritation: No eye irritation in rabbits. Method: OECD Test Guideline 405

Skin Sensitization: No skin sensitization in Guinea pigs. Buehler Test. Method: OECD Test Guideline 406

Respiratory Sensitization: Not classified based on available information.

Germ Cell Mutagenicity: Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity: Not classified based on available information.

Reproductive toxicity: Weight of evidence does not support classification for reproductive toxicity.

STOT-single exposure: Inhalation (vapor): No significant health effects observed in animals at concentrations of 20mg/l/4h or less.

STOT-repeated exposure: Inhalation (vapor): No significant health effects observed in animals at concentrations of 1mg/l/6h/d or less.

Aspiration toxicity: No aspiration toxicity classification.

12. ECOLOGICAL INFORMATION

1,1,1,2,2,3,4,5,5,5-Decafluoropentane

96 hour LC50 in Danio rerio (zebra fish): 13 mg/l. Method: OECD Test Guideline 203

48 hour EC50 in Daphnia magna (Water flea): 10.6 mg/l. Method: OECD Test Guideline 202

72 hour EC50 in Selenastrum capricornutum (Green algae): >120 mg/l. Method: OECD Test Guideline 201

21 days NOEC in Daphnia magna (Water flea): 1.72 mg/l. Method: OECD Test Guideline 211

Biodegradability: Not readily biodegradable. Method: OECD Test Guideline 301D

Bioaccumulative potential: Bioaccumulation is unlikely. Partition coefficient: noctanol/water: log Pow: 2.4 (75 °F / 24 °C)

Mobility in soil: No data available

13. DISPOSAL CONSIDERATIONS

Comply with federal, state and local regulations. Remove to a permitted waste disposal facility.

14. TRANSPORT INFORMATION

U.S. DOT

Limited Quantity

IATA

Proper Shipping Name: Aerosols, Non-Flammable

Hazard Class: 2.2

Identification No. UN1950

Packing Group: None

IMDG

Proper Shipping Name: Aerosols, Non-Flammable

Hazard Class: 2.2

Identification No. UN1950

Packing Group: None

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA: All ingredients are listed in TSCA inventory.

1,1,1,2,2,3,4,5,5,5-Decafluoropentane (CAS# 138495-42-8) - The United States Environmental Protection Agency has established a Significant New Use Rule (SNUR; 40 CFR 721.5645) for this product. Also, this product requires an export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D.

CERCLA Reportable Quantity: This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity: This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity: This material does not contain any components with a section 302 EHS RQ.

SARA 311/312 Hazards: No SARA Hazards

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer and/or birth defects or other reproductive defects.

16. OTHER INFORMATION

FOR INDUSTRIAL USE ONLY

REVISION DATE: FEBRUARY 2023

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.