



## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** MS-120X  
Krytox® Fluorinated Synthetic Lubricant  
Covers Products: MS-1200, 1201, 1202,  
1203, 1204, 1205, 1206, 1207

**Product Use:** Lubricant

### **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**

Acute aquatic toxicity: Category 3  
Chronic aquatic toxicity: Category 3.

### **GHS Label elements:**

**Pictogram:** not required

**Hazardous warnings:** Harmful to aquatic life with long lasting effects.

**Precautionary measures:** Avoid release to the environment.

Pressurized container: Do not pierce or burn, even after use.

Dispose of contents/container to an approved waste disposal plant.

### **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.

May cause cardiac arrhythmia

The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

Repeated episodes of polymer fume fever may result in persistent lung 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 (HFC-43-10mee) | 138495-42-8    | 70 - 75              |
| 1,1,1,2-Tetrafluoroethane                            | 811-97-2       | 18 - 22              |
| Perfluoroalkylether                                  | 60164-51-4     | 4 - 7                |
| PTFE polymer   | 9002-84-0      | 1 - 4                |

### 4. FIRST AID MEASURES

**Inhalation:** Remove patient to fresh air. If not breathing, give artificial respiration. Give oxygen as necessary, if qualified personnel is available. Get medical attention if necessary.

**Eye:** Flush with large amounts of water for at least 15 minutes, lifting eyelids until no evidence of the chemical remains. Get medical attention if necessary.

**Skin:** Wash skin with water after contact. Wash contaminated clothing before use. Get medical attention if necessary.

**Oral:** If swallowed, Do NOT induce vomiting, because the hazard of aspirating the material into the lungs is considered greater than swallowing it. Immediately give 2 glasses of water. Never give anything to an unconscious person. Call a physician.

If vomiting occurs naturally, have a victim lean forward to reduce the risk of aspiration.

#### **Notes to Physician:**

THIS MATERIAL MAY MAKE THE HEART MORE SUSCEPTIBLE TO ARRHYTHMIAS. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

### 5. FIRE FIGHTING MEASURES

**Specific hazards:** This product is not flammable.

**Fire and Explosion:** Aerosols may rupture under fire conditions. Decomposition may occur.

**Extinguishing Media:** As appropriate for surrounding area.

**Special Fire Fighting Instruction:** Self-contained breathing apparatus (SCBA) maybe required if a large amount of aerosols rupture under fire conditions. Evacuate personnel to safe area. Fight fire from a distance, heat may rupture containers.

### 6. ACCIDENTAL RELEASE MEASURES

Ventilate area with fresh air, if a large amount is accidental released and wear self-contained breathing apparatus. No need for additional release information, since it is an aerosol.

## 7. HANDLING AND STORAGE

**Handling:** Use in a well-ventilated area to avoid breathing vapors. Vapors are heavier than air and accumulate in low areas. Use only with adequate ventilation. Where ventilation is inadequate, use appropriate respiratory protection. Avoid contact with skin or eyes. Wash thoroughly after handling. Polytetrafluoroethylene should not be handled around tobacco products because, smoking contaminated tobacco products may cause polymer fume fever.

**Storage Conditions:** Store in a clean, dry area. Do not store sources of heat, in direct sunlight or where temperatures exceed 120°F/49°C. Protect from freezing temperatures. If solvent is stored below 14°F/-10°C, shake prior to use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| <u>Exposure Limits:</u>             | <u>TLV (ACGIH)</u> | <u>PEL (OSHA)</u> | <u>AEL*(DuPont)</u>                         |
|-------------------------------------|--------------------|-------------------|---|
| 1,1,1,2,2,3,4,5,5-Decafluoropentane | Not Established    | Not Established   | 200 ppm, 8 & 12 Hr. TWA<br>400 ppm, Ceiling |
| 1,1,1,2-Tetrafluoroethane           | Not Established    | Not Established   | 1000 ppm                                    |

\*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**Respiratory Protection:** Avoid breathing vapors, mists or spray. Use with mechanical ventilation especially for enclosed or low places. Local exhaust should be used when large amounts are released. If necessary to keep exposure limits below permissible limits, use NIOSH approved respirators. In poorly ventilated areas, use an approved self-contained breathing apparatus.

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

**Skin Protection:** Avoid contact with skin. Use gloves impervious to this material when prolonged or frequently repeated contact occurs.

**Prevention of Swallowing:** Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** N.A.

**Percent Volatile by Volume:** 92

**Density:** 1.58 g/cc @ 77°F/25°C

**Vapor Pressure:** 226 mmHg @ 77°F/25°C

**Vapor Density (Air=1):** N.A.

**Solubility in H<sub>2</sub>O:** 140 ppm

**pH Information:** Neutral

**Evaporation Rate (CC14=1):** N.A.

**Form:** Aerosol

**Appearance:** Clear & Colorless

**Color:** Colorless

**Odor:** N.A.

## 10. STABILITY AND REACTIVITY

**Stability:** Stable at normal temperatures and storage conditions.

**Incompatibility with Other Materials:** Incompatible with alkali or alkaline earth metals – powdered Al, Zn, Be, Na, Mg, etc. Incompatible with strong bases such as NaOH, KOH, etc.

**Decomposition:** Decomposes with heat. The polymer can decompose at temperatures of 572°F/300°C forming hazardous fluorinated compounds. Also high temperatures (open flames, glowing metal surfaces, etc.) can decompose 1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee) forming hydrofluoric acids and possibly carbonyl halides. HFC-43-10mee is incompatible with strong bases and can react to form salts of hydrofluoric acid and unsaturated compounds of unknown toxicity.

**Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity:** None of the components in this product are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

### Animal Data

#### Perfluoroalkylether/ PTFE Greases

Oral ALD: >11,000mg/kg in rats

**Skin Irritation:** slight irritation, Rabbit

**Eye Irritation:** slight irritation, Rabbit

**Sensitisation:** Animal test did not cause sensitization by skin contact, Guinea pig

#### 1,1,1,2-Tetrafluoroethane

##### Inhalation:

4 hour, LC50 rat: >500000 ppm

**Sensitization:** Cardiac sensitization

Species: Dogs

Note: No-observed-effect level 50 000 ppm Lowest observable effect level 75 000

**Repeated dose toxicity:** Species: rat

NOEL: 40000ppm

**Genotoxicity in vitro:** Note: In vitro tests did not show mutagenic effects

**Other Health Effects:** This substance has no evidence of carcinogenic properties

### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee)**

**Inhalation:** 4 hour LC50: 114mg/l in rats, Central nervous system effects, Convulsions

**Oral:** LD50: > 5,000 mg/kg in rats

**Dermal:** LD50: > 5,000 mg/kg in rabbits

**Skin Irritation:** No skin irritation, rabbit

**Eye Irritation:** No eye irritation, rabbit

**Skin Sensitization:** Did not cause sensitization on laboratory animals, guinea pig

**Repeated dose toxicity:** Inhalation, rat

No toxicologically significant effects were found.

**Reproductive toxicity:** Animal testing showed no reproductive toxicity.

**Teratogenicity:** Animal testing showed no developmental toxicity.

## **12. ECOLOGICAL INFORMATION**

### **Aquatic Toxicity:**

#### **1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee):**

96 hour LC50 in fathead minnows: 27.2 mg/L

96 hour LC50 in rainbow trout: 13.9 mg/L

48 hour LC50 in Daphnia magna: 11.7 mg/L

72 hour EC50 in green algae: > 120mg/L

#### **Perfluoropolyether:**

96 hour LC50 in rainbow trout: > 1,000 mg/l

72 hour ErC50 in green algae: > 1,000 mg/l

72 hour NOEC in green algae: > 1,000 mg/l

48 hour EC50 in water flea: > 1,000mg/l

**PTFE:** Substances is a polymer and is not expected to produce toxic effects.

### **1,1,1,2-Tetrafluoroethane**

**Ecotoxicity:** There is no data on the ecotoxicity of this product.

**Additional ecology information: Accumulation** in aquatic organisms is unlikely. The product contains greenhouse gases which may contribute to global warming.

## **13. DISPOSAL CONSIDERATIONS**

Comply with federal, state and local regulations. Remove to a permitted waste disposal facility. Do not puncture or incinerate cans. Empty aerosol cans before disposal.

14. **TRANSPORT INFORMATION**

**U.S. DOT**

**Proper Shipping Name:** Consumer Commodity

**Hazard Class:** ORM-D

**Identification No.** None

**Packing Group:** None

**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.

**SARA/TITLE III HAZARD CATEGORIES:**

**Product Hazard Categories:**

Acute Health - Yes

Chronic Health - No

Fire Hazard - No

Reactivity Hazard - No

Pressure Hazard - Yes

1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule (SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal, film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

**16. OTHER INFORMATION**

**NPCA-HMIS Ratings:**

Health - 1  
Flammability - 0  
Reactivity - 0

Personal Protective rating to be supplied by user depending on the conditions.

**FOR INDUSTRIAL USE ONLY**

**REVISION DATE: SEPTEMBER 2015**

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.