

## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** MS-222N  
MS-222T  
Aero-Duster

**Product Use:** Duster

### **MANUFACTURER/DISTRIBUTOR:**

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

**Emergency Phone Number:**  
(800) 424-9300

## 2. HAZARDS IDENTIFICATION

**Physical Hazard:** Gases under pressure – Liquefied Gas

### **Label elements:**



**Single Word:** Warning

### **Hazard Statements**

Contains gas under pressure; may explode if heated.  
May displace oxygen and cause rapid suffocation.

### **Precautionary Statements**

Protect from sunlight.  
Store in a well-ventilated place.

### **Other Hazards**

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Misuse or intentional inhalation abuse may lead to death without warning symptoms, due to cardiac effects. Rapid evaporation of the product may cause frostbite.

### 3. INGREDIENTS

| <u>Material (s)</u>       | <u>CAS No.</u> | <u>Approximate %</u> |
|---------------------------|----------------|----------------------|
| 1,1,1,2 Tetrafluoroethane | 811-97-2       | 100                  |

### 4. FIRST AID MEASURES

**Inhalation:** Remove patient to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.

**Eye:** Get medical attention immediately.

**Skin:** Thaw frosted parts with lukewarm water. Do not rub affected area. Get medical attention immediately.

**Oral:** Ingestion is not considered a potential route of exposure.

**Most important symptoms/effects, acute and delayed:** May cause cardiac arrhythmia.

Other symptoms potentially related to misuse or inhalation abuse: Cardiac sensitization, Anaesthetic effects, Light-headedness, Dizziness, Confusion, Lack of coordination, Drowsiness, Unconsciousness.

Contact with liquid or refrigerated gas can cause cold burns or frostbite.

**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

**Suitable Extinguishing Media:** Not applicable. Will not burn.

**Unsuitable extinguishing media:** Not applicable. Will not burn.

**Specific hazards during firefighting:** Aerosol cans may rupture under fire conditions Exposure to combustion products may be hazardous to health. Hazardous combustion products: Hydrogen fluoride, Carbonyl fluoride, Carbon oxides.

**Specific extinguishing methods:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate personnel to safe areas. Cool containers with water spray. Remove undamaged containers from fire area if it is safe to do so. Fight fire remotely due to risk of explosion.

**Protective Equipment for Fire-Fighters:** Self-contained breathing apparatus if necessary. Use personal protective equipment.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Aerosols can explode when heated. Ventilate area. Warn personnel of this hazard and unprotected personnel should not return until safe to do so. Follow safe handling advice (Section 7) and personal protective equipment recommendations (Section 8). Avoid skin contact with leaking liquid (danger of frostbite).

**Environmental Precautions:** Avoid release to the environment. Prevent further leakage or spillage, if safe to do so.

**Spill Clean Up Methods:** Ventilate area. Local and national regulations may apply to releases and disposal of this material.

## 7. HANDLING AND STORAGE

**Handling:** Avoid inhalation of vapors. Use in a well-ventilated area. Use an approved respirator if necessary. Keep away from heat and sources of ignition. Do not get in eyes or on skin.

**Storage Conditions:** Store in a clean, dry place, not near sources of heat, in direct sunlight or where temperatures exceed 122°F/50°C.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| <u>Exposure Limits:</u>   | <u>TLV (ACGIH)</u> | <u>PEL (OSHA)</u> | <u>US WEEL</u> |
|---------------------------|--------------------|-------------------|----------------|
| 1,1,1,2-Tetrafluoroethane | Not Established    | Not Established   | 1000 ppm (TWA) |

**Engineering Measures:** Use adequate ventilation. Vapors are heavier than air and if working in confined or poorly ventilated areas, proper respiratory protection must be used to prevent exceeding the exposure limit.

**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. Face-shield.

**Skin Protection:** Avoid contact with skin. Use gloves impervious to this material. For special applications, we recommend clarifying the resistance of the protective gloves for this chemical 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:** Good personal hygiene practices are always advisable. Do not eat, drink, or smoke when using.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** -15°F/-26°C

**Percent Volatile by Volume:** 100%

**Density:** 1.21 g/cc at 77°F/25°C

**Volatile Organic Compound (VOC):** Not applicable

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

**Vapor Pressure:** 5700 hPa at 68°F/20°C

**pH Information:** N.A.

**Solubility in H<sub>2</sub>O:** 1.5 g/l at 77°F/25°C

**Form:** Liquid Gas Aerosol

**Evaporation Rate (CCl<sub>4</sub>=1):** > 1

**Color:** Colorless

**Odor:** Faint Ethereal

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents.

**Material and Conditions to Avoid:** Heat, flames and sparks. Oxidizing agents.

**Decomposition:** No hazardous decomposition products are known.

## 11. TOXICOLOGICAL INFORMATION

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

**Acute Inhalation:**

LC50 (Rat) > 567000, 4 h. Test atmosphere: gas. Method: OECD Test Guideline 403

No observed adverse effect concentration (Dog): 40000 ppm. Test atmosphere: gas. Remarks: Cardiac sensitization

Lowest observed adverse effect concentration (Dog): 80000 ppm. Test atmosphere: gas. Symptoms: May cause cardiac arrhythmia.

Cardiac sensitisation threshold limit (Dog): 334,000 mg/m<sup>3</sup>. Test atmosphere: gas. Symptoms: May cause cardiac arrhythmia.

**Skin corrosion/irritation:** No skin irritation.

**Serious eye damage/eye irritation:** No eye irritation.

**Respiratory or skin sensitization:** Not classified based on available information. Negative in Rat: Skin contact and Inhalation.

**Germ cell mutagenicity:** Weight of evidence does not support classification as a germ cell mutagen.

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse

Application Route: inhalation (gas) Method: OECD Test Guideline 474 Result: negative

Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo Species: Rat

Application Route: inhalation (gas) Method: OECD Test Guideline 486 Result: negative

**Carcinogenicity:** Weight of evidence does not support classification as a carcinogen. Rat by inhalation (gas) for 2 years is negative.

Method: OECD Test guideline 453

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

Effects on fertility: Mouse by inhalation is negative.

Effects on fetal development: Test type: Combined repeated dose toxicity study with the reproduction/development toxicity screening test in Rabbit by inhalation (gas) is negative. Method: OECD Test Guideline 414

**STOT-single exposure:** Not classified based on available information. No significant health effects observed in animals at concentrations of 20000ppmV/4h or less by inhalation (gas).

**STOT-Repeated exposure:** Not classified based on available information. No significant health effects observed in animals at concentrations of 250ppmV/6h/d or less by inhalation (gas).

**Aspiration toxicity:** No aspiration toxicity classification.

## 12. ECOLOGICAL INFORMATION

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

**Toxicity to fish:** 96 hour LC50 (Oncorhynchus mykiss (rainbow trout)): 450 mg/l. Method: Regulation (EC) No. 440/2008, Annex, C.1

**Toxicity to daphnia and other:** 48 hour EC50 (Daphnia magna (Water flea)): 980 mg/l. Method: Regulation (EC) No. 440/2008, Annex, C.2

**Toxicity to algae:** 96 hour ErC50 (algae): 100 mg/l. Based on data from similar materials.

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

**Bioaccumulative potential:** Bioaccumulation is unlikely. Partition coefficient n-octanol/ water (log Pow): 1.06

**Mobility in soil:** No data available

**Other adverse effects:** No data available

### **13. DISPOSAL CONSIDERATIONS**

Dispose of in accordance with local regulations. Do not puncture or incinerate cans.

### **14. TRANSPORT INFORMATION**

#### **U.S. DOT**

**Limited Quantity**

#### **IATA**

**Proper Shipping Name:** 1,1,1,2 Tetrafluoroethane

**Hazard Class:** 2.2

**Identification No.** UN 3159

**Packing Group:** None

(Authorization DOT-SP 10232 for CFR only)

#### **IMDG**

**Proper Shipping Name:** 1,1,1,2 Tetrafluoroethane

**Hazard Class:** 2.2

**Identification No.** UN 3159

**Packing Group:** None

(Authorization DOT-SP 10232 for CFR only)

### **15. REGULATORY INFORMATION**

#### **US FEDERAL REGULATIONS:**

**TSCA:** All ingredients are listed in TSCA inventory.

**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 TPQ.

**SARA 311/312 Hazards:** Gases under pressure. Simple Asphyxiant.

**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.

**INTERNATIONAL INVENTENTORIES:**

**US – TSCA 12(b) Export Notification**

None of the ingredients are listed.

**CANADA: DSL/NDSL**

All ingredients are listed or exempt.

**16. OTHER INFORMATION**

**HMIS Ratings:**

Health - 0

Flammability - 0

Physical Hazard - 3

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

**FOR INDUSTRIAL USE ONLY**

**REVISION DATE: SEPTEMBER 17, 2024**

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.