1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-122AD
MS-122ADM
DPMS-Z0918A
PTFE Release Agent/Dry Lubricant

Product Use: Release Agent or Dry 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

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:
Do not spray on an open flame or other ignition source.
Do not pierce or burn, even after use.
Avoid breathing mist/vapor/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear eye protection, protective clothing and protective gloves.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Remove/Take off all contaminated clothing, immediately. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in position comfortable for breathing.
Protect from sunlight. Do not expose to temperature exceeding 50°C/122°F.
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.
Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.
The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

3. INGREDIENTS

Material (s)	CAS No.	Approximate %
1,1,1,2-Tetrafluoroethane	811-97-2	90 - 95
Isopropyl Alcohol	67-63-0	5 - 10

4. FIRST AID MEASURES

Inhalation: Remove to fresh air. Get medical attention if symptoms occur.

Eye: Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Continue to rinse. Get medical attention.

Skin: Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before use. Thoroughly clean shoes before reuse. Get medical attention if symptoms occur.

Oral: DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Inhalation may provoke the following symptoms: Polymer fume fever. Eye contact may provoke the following symptoms: Irritation Causes serious eye irritation. May cause drowsiness or dizziness. May cause cardiac arrhythmia. Other symptoms potentially related to misuse or inhalation abuse are: Cardiac sensitization, Anaesthetic effects, Light-headedness, dizziness, confusion, Lack of coordination, Drowsiness, Unconsciousness.

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

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

Extinguishing Media: Water spray, Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO2)

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health. Aerosols will rupture under fire conditions due to the heat and high pressure.

Hazardous combustion products: Carbon oxides, Hydrogen fluoride, Carbonyl fluoride, Potentially toxic fluorinated compounds.

Special Fire Fighting Instruction: Evacuate area. Use water spray to cool aerosols. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Do not breathe fumes or vapors from fire. Self-contained breathing apparatus (SCBA) may be required if a large amount of aerosols rupture under fire conditions. Fight fire from a distance, heat may rupture containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Evacuate area. Ventilate the area with fresh air. Use personal protective equipment. If a large amount of aerosols rupture and spill in confined areas, provide mechanical ventilation to disperse the vapors.

Environmental precautions: Avoid release to the environment. Prevent material from entering sewers, waterways, or low areas. Do not allow contact with soil, surface, or ground water. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up: Contain spillage, and then collect with inert absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

7. HANDLING AND STORAGE

Handling: Use in a well-ventilated area to avoid breathing vapors. Use only with adequate ventilation. Use appropriate respiratory protection, when ventilation is inadequate. Avoid contact with skin or eyes. Wash thoroughly after handling.

Storage Conditions: Do not store near sources of heat, in direct sunlight or where temperatures exceed $50^{O}C/122^{O}F$.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	**ACGIH**	**OSHA**
1,1,1,2-Tetrafluoroethane	Not Established	Not Established
Isopropyl Alcohol	200 ppm, TWA	400 ppm, TWA

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. Use gloves impervious when prolonged or frequently repeated contact occurs. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often.

Prevention of Swallowing: Do not eat, drink or smoke when using this product. Wash hands thoroughly after contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Applicable

Percent Volatile by Volume: 99%

Density: 1.2 g/cc at 77°F/25°C

Vapor Pressure: 80 psig at 77°F/25°C

Vapor Density (Air=1): >1

Solubility in H_2O : Insoluble

pH Information: Neutral

Evaporation Rate (CC14=1): >1

Form: Aerosol

Appearance: Milky

Color: White

Odor: Faint Ethereal Odor

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical Stability: Stable at normal conditions.

Material and Conditions to Avoid Avoid heat, sparks and flame. Oxidizing agents.

Hazardous Decomposition Products: This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Hydrogen fluoride, Carbonyl difluoride, Carbon monoxide and Carbon dioxide.

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 sensitization threshold limit (Dog): 334,000 mg/m³. 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 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. Species: Rat. Application Route: inhalation (gas) Exposure time: 2 years. Method: OECD Test guideline 453. Result: negative.
Reproductive toxicity: Weight of evidence does not support classification for reproduction toxicity.
Species: Mouse. Application Route: Inhalation. Result: negative effects on fertility. Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test. Species: Rabbit. Application Route: inhalation (gas). Method: OECD Test Guideline 414. Result: negative effects on fetal development.
STOT-single exposure: Not classified based on available information. Routes of exposure: inhalation (gas). Assessment: No significant health effects observed in animals at concentrations of 20000 ppmV/4h or less.

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

Isopropyl Alcohol

Acute Toxicity
Oral: LD50, Rat, > 5,000 mg/kg
Dermal: LD50, Rat, > 5,000 mg/kg
Inhalation: LC50, 6 h, Vapor, Rat, > 25 mg/l
Skin Corrosion/Irritation: No skin irritation in rabbits.
Serious Eye Damage/Irritation: Irritation to eyes in Rabbits, reversing within 21 days.
Skin Sensitization: Not classified based on available information. Test Type: Buehler Test. Routes of exposure: Skin contact. Species: Guinea pig. Method: OECD Test Guideline 406. Result: negative
Respiratory Sensitization: Not classified based on available information.
Germ Cell Mutagenicity: In vitro and In vivo - Not Mutagenic
Carcinogenicity: Negative based in inhalation testing in rats. Species: Rat. Application Route: inhalation (vapor). Exposure time: 104 weeks. Method: OECD Test Guideline 451. Result: negative
Reproductive Toxicity: Not classified based on available information. Test Type: Two-generation reproduction toxicity study. Species: Rat. Application Route: Ingestion. Result: negative effects on fertility. Test Type: Embryo-fetal development. Species: Rat. Application Route: Ingestion. Result: negative effects on fetal development
STOT- single exposure: May cause drowsiness or dizziness.
STOT- repeated exposure: Not classified based on available information.
Aspiration toxicity: Not classified based on available information.

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

Isopropyl Alcohol

Toxicity to fish: 96 hour LC50, fathead minnow (Pimephales promelas): 9,640 mg/l
Toxicity to daphnia and other aquatic invertebrates: 24 hour EC50, water flea (Daphnia magna): >10,000 mg/l
Toxicity to microorganisms: 16 hour EC50, (Pseudomonas putida): >1,050 mg/l
Persistence and degradability: Rapidly degradable. BOD/COD: BOD: 1.19 (BOD5)COD: 2.23BOD/COD: 53 %
Bioaccumlative potential: Partition coefficient: n-octanol/water: log Pow: 0.05
Mobility in soil: No data available.

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
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.

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.

SARA 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR 372). They may not be intentionally present in the product; however, it is possible that it may be present as an impurity and the exact concentration may vary between batches:
Perfluorobutanoic acid, CAS No.: 375-22-4, < 0.5 ppb
Perfluorohexanoic acid, CAS No.: 307-24-4, < 0.5 ppb
Perfluorononanoic acid, CAS No.: 375-95-1, < 0.5 ppb
Perfluorododecanoic acid, CAS No.: 307-55-1, < 1 ppb
Perfluorodecanoic acid, CAS No.: 335-76-2, < 1 ppb
Perfluorooctanoic acid, CAS No.: 335-67-1, < 1 ppb

U.S. State Regulations:

California Prop. 65
WARNING: This product can expose you to chemicals including 2,2'-Iminodiethanol, which is/are known to the State of California to cause cancer, and Carbon monoxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. Note to User: This product is not made with PFOA nor is PFOA intentionally present in the product; however, it is possible that PFOA may be present as an impurity at background (environmental) levels.

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 1
Flammability	- 0
Reactivity	- 1

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: APRIL 10, 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.