1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-122ADL
H1212A
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.

Precautionary Statements: Avoid breathing spray.
Wash skin thoroughly after handling.
Use in a well-ventilated area.
In case of EYE contact, immediately flush eyes with plenty of water.
If eye irritation persists: Get medical attention.
IF ON SKIN: Remove/Take off all contaminated clothing, immediately. Rinse skin with water.
If INHALED: Remove victim to fresh air.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F
Pressurized container. Do not pierce or burn, even after use.

Hazardous prevention measures: Avoid release to the environment.
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

Material (s)	CAS No.	Approximate %
Trans-1,3,3,3-Tetrafluoroprop-1-ene (HFO-1234ze)	29118-24-9	88 - 92
Isopropyl Alcohol	67-63-0	5 - 10
Poly-TFE, Omega-Hydro-Alpha-(Methylcyclohexyl)-	65530-85-0	1 - 2
Poly-Tetrafluoroethylene	9002-84-0	< 1

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: DO NOT induce vomiting, unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Call a physician.

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

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: Do not store near sources of heat, in direct sunlight or where temperatures exceed 120^{O}F/49^{O}C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TLV (ACGIH)	PEL (OSHA)	WEEL (AIHA)
HFO-1234ze	Not Established	Not Established	800 ppm (TWA)
Isopropyl Alcohol	400 ppm , STEL	400 ppm, 8 Hr. TWA	
Poly-Tetrafluoroethylene	Not Established	Not Established	10 mg/m3, 8 Hr. TWA, total dust* 5 mg/m3, 8 Hr. TWA, respirable dust* (DuPont)

*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 hands thoroughly after contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Applicable

Density: 1.1 g/cc at 70^{O}F/21^{O}C

Vapor Density (Air=1): >1

pH Information: Neutral

Form: Aerosol

Color: White

Percent Volatile by Volume: 99%

Vapor Pressure: 60.8 psig at 68^{O}F/20^{O}C

Solubility in H_2O : Insoluble

Evaporation Rate (CC14=1): >1

Appearance: Milky

Odor: Faint Ethereal Odo

10. STABILITY AND REACTIVITY

Stability: Stable at normal and storage conditions.

Material and Conditions to Avoid Avoid heat, sparks and flame. Strong oxidizers, strong acids, reactive metals, halogenated compounds, aldehydes, strong bases, alkali metals, alkaline earth metals.

Decomposition: This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming halogenated hydrocarbons, hydrogen fluoride, hazardous gases including carbon monoxide and carbon dioxide.

Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

HFO-1234ze

Animal Data:

Skin: Rabbit testing indicates this material is not a skin irritant.

Inhalation:

Acute (4-Hour) Inhalation Toxicity Screening Study (mouse): No Lethality at >100,000ppm

4 hour, LC50 rat: >207,000ppm

Repeated exposure in rats over 13 weeks caused mild effects on the heart. NOEL 5,000ppm.

Gentoxicity:

Results of chromosome aberration test in vitro in human lymphocytes were negative. Ames test results: negative

Mutagenicity in vivo mammalian (mouse) bone-marrow cytogenetic test, chromosomal analysis results: negative.

Isopropyl Alcohol

Dermal LD50: 12,900 mg/kg, rabbit

Oral LD50: 4,700 mg/kg, rat
Gastrointestinal effects
Kidney effects

Inhalation 4 h LC50: 39.3 mg/l, rat
Respiratory tract damage
Central nervous system depression

Skin irritation: Mild skin irritation, rabbit

Eye irritation: Eye irritation, rabbit
Skin sensitization: There are no reports of human skin sensitization.
Repeated dose toxicity: Inhalation
Central nervous system effects, Liver effects, Kidney effects, lung effects, Spleen effects, Testes

Oral
Liver enlargement, Kidney enlargement, Adrenal effects

Dermal
Drying of skin, Weight loss, Organ weight changes

Teratogenicity: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Poly-TFE, Omega-Hydro-Alpha-(Methylcyclohexyl)-

Oral: ADL/rat: >17,000 mg/kg
Skin irritation: No skin irritation, guinea pig
Eye irritation: No eye irritation, rabbit
Skin sensitization: Did not cause sensitization on laboratory animals., guinea pig

Poly-Tetrafluoroethylene

Oral: LD50/rat: >11,280 mg/kg
Skin irritation: No skin irritation, human
Eye irritation: No eye irritation, rabbit
Skin sensitization: Patch test on human volunteers did not demonstrate sensitization properties.
Repeated dose toxicity: Oral, rat
No toxicologically significant effects were found.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity:

Isopropyl Alcohol

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), flow-through, 96 h: 9,640 - 10,400 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 48 h, immobilization: 7,550 - 13,299 mg/l
Aquatic Plant Toxicity
EC50, alga Scenedesmus sp., Growth rate inhibition, 72 h: > 1,000 mg/l
Toxicity to Micro-organisms
EC50; activated sludge, respiration inhibition: > 1,000 mg/l

HFO-1234ze:

48 hour EC50 – Daphnia magna: >160 mg/L
96 hour NOEC – Cyprinus carpio (Carp): >117 mg/L
72 hour NOEC- Algae growth inhibition; >170 mg/L

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.

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 2
Flammability	- 0
Reactivity	- 0

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: FEBRUARY 2016

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.