1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: **MS-720L**
J0913A
Precision Cleaning Solvent

Product Use: Precision 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

Hazard classification
Flammable aerosol: Category 2
Eye Irritation: Category 2A

Label elements:
Signal word
Warning

Pictograms

Hazardous warnings
Flammable aerosol
Causes serious eye irritation

Precautionary Statements
Keep away from heat/sparks/open flames/hot surfaces – No smoking.
Use only non-sparking tools.
Take precautionary measures against static discharge.

Avoid breathing fumes/gas/vapor/spray.
Wash skin thoroughly after handling.
Use in a well ventilated area.
Wear protective gloves/eye protection/face protection.
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.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Pressurized container: Do not pierce or burn, even after use.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Dispose of contents/container to an approved waste disposal plant.

Other Hazards
Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Prolonged skin contact may defat the skin and produce dermatitis.

3. INGREDIENTS

Material (s)	CAS No.	Approximate %
Trans-1-Chloro-3,3,3-trifluoropropene	102687-65-0	65 – 70
Isopropyl Alcohol	67-63-0	10 – 15
Trans-1,3,3,3-Tetrafluoroprop-1-ene	29118-24-9	18 – 22

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. Remove contact lenses, if present and easy to do. Continue to rinse.

Skin: Wash skin with plenty of water for at least 15 minutes. Wash contaminated clothing before use. Get medical attention if necessary.

Oral: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

Flammability: This product is flammable. **Test Method:** Ignition distance test and Enclosed space ignition test

Suitable Extinguishing Media: Alcohol resistant foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable extinguishing media: No applicable data available.

Special hazards: Hazardous reaction will not occur under normal conditions. Keep containers cool by spraying with water.

Special Fire Fighting Instruction: In the event of fire, wear self-contained breathing apparatus and other protective clothing to prevent contact with the skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel): Use personal protective equipment. Avoid breathing vapors, mist or gas. Evacuate personnel to safe area. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors accumulate in low areas. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: If containers rupture, prevent material from entering sewers, waterways, or low areas. Should not be released into the environment.

Spill Cleanup: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and put the material into a convenient waste disposal container for disposal according to local regulations.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, or clothing. Do not inhale vapor or mist. Wash thoroughly after handling. Keep away from heat, sparks, and open flame. Take measures to prevent the buildup of electrostatic charge.

Storage Conditions: Store in a clean, cool and dry area that is well-ventilated. Do not store sources of heat, in direct sunlight or where temperatures exceed 120^{O}F/49^{O}C. Do not pierce or burn, even after use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TWA (ACGIH)	PEL (OSHA)	TWA (Honeywell)
Trans-1,3,3,3-Tetrafluoroprop-1-ene	Not Established	Not Established	800 ppm
Trans-1-Chloro-3,3,3-trifluoropropene	Not Established	Not Established	300 ppm
Isopropyl Alcohol	400 ppm , TWA	400 ppm, 8 Hr. TWA	

Use only with adequate ventilation.

Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places. Mechanical ventilation should be used in these areas.

Respiratory Protection: Avoid breathing vapors. Local exhaust should be used when large amounts are release. If necessary to keep exposure limits below permissible limits, wear suitable respiratory equipment. Wear a positive-pressure supplied-air respirator. In poorly ventilated areas, or if a large release occurs, use an approved self-contained breathing apparatus (SCBA).

Eye Protection: Avoid eye contact. Use chemical splash goggles.

Skin Protection: Use impervious gloves when necessary.

Hygiene Measures: Avoid breathing vapors, and mist. Avoid contact with skin and eyes. Provide adequate ventilation, especially in confined areas. Wash hands after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.

Density: 1.17 g/cc at 54°F/12.2°C

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

Appearance: Clear Liquid

Percent Volatile by Volume: 100%

Vapor Pressure: N.A.

Solubility in H_2O: 1.90 g/l at 68°F/20°C

Odor: Slight

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and storage conditions.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Material and Conditions to Avoid: Do not store above 122^{o}F/50^{o}C. Keep away from direct sunlight. Protect from heat, flames and sparks. Do not mix with oxygen or air above atmospheric pressure. Avoid alkali metals, strong acids, strong bases, strong oxiding agents, aldehydes, halogenated compounds, powered Magnesium, and Aluminum.

Decomposition: Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc) forming products containing Carbon monoxide, Carbon dioxide, Carbonyl halides, Gaseous hydrogen chloride, and Gaseous hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

No component in this product, at levels greater than or equal to 0.1%, is identified as a known or anticipated carcinogen by IARC, NTP or OSHA.

Trans-1,3,3,3-Tetrafluoroprop-1-ene

Inhalation:
4 hour, LC50 rat: >207000 ppm
Skin irritation: No skin irritation in rabbits. Method: OECD Test Guideline 404
Method: OECD Test Guideline 40
Sensitization: Cardiac sensitization
Species: Dogs
Result: Did not cause sensitization on laboratory animals.
Repeated dose toxicity:
13 Weeks, Inhalation, rat: Causes mild effects on the heart. NOEL 5,000 ppms
Genotoxicity in vitro: In vitro tests did not show mutagenic effects.
Teratogenicity: Did not show teratogenic effects in animal experiments.
Other Health Effects: This substance has no evidence of carcinogenic properties.

Trans-1-Chloro-3,3,3-trifluoropropene

Inhalation:
Acute Inhalation Toxicity: 4 hour, LC50:120000 ppm in rats.
Skin irritation: Rabbit testing indicates this material is not a skin irritant.
Sensitisation: Does not cause skin sensitization.
Repeated dose toxicity:
4 Weeks, Inhalation, rat: NOEL 4500 ppm Note: Subacute toxicity
Gentoxicity; In vitro and in vivo tests didn't show mutagenic effects.
Reproductive toxicity: Species: rabbit, No-observed-effect level approx. 15,000 ppm
Species: rat, No-observed-effect level approx. 10,000ppm
Teratogenicity: Species: rabbit, No-observed-effect level approx. 15,000 ppm
Species: rat, No-observed-effect level approx. 10,000pp

Isopropyl Alcohol

Acute Toxicity
Ingestion: LD50, Rat, 4,710 mg/l
Skin Absorption: LD50, Rabbit, 12,870 mg/kg
Inhalation: LC50, 4 h, Vapor, Rat, 72.6 mg/l
Skin Corrosion/Irritation: No significant irritation in multiple animal species.
Serious Eye Damage/Irritation: Serious eye irritant in Rabbits
Sensitization Skin: Not sensitizing in Guinea pigs
Sensitization Respiratory: Data not available or insufficient for classification
Germ Cell Mutagenicity: In vitro and In vivo - Not Mutagenic
Carcinogenicity: Some positive data exists with inhalation in rats, but the data is not sufficient for classification.
Reproductive and/or Developmental Toxicity: Some positive developmental data exist in rats, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: bladder and kidney, but not sufficient for classification.
Single Dose Toxicity: In Humans, some positive data exists on the nervous and respiratory systems, but not sufficient for classification. May cause drowsiness or dizziness, if ingested.
Aspiration Hazard: Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects:

Trans-1,3,3,3-Tetrafluoroprop-1-ene

96 hour NOEC – Cyprinus carpio (Carp): > 117 mg/L
48 hour EC50 – Daphnia magna (Water flea): > 160 mg/L
Toxicity to algae: Growth inhibition: NOEC: > 170 mg/l, Exposure time: 72 h
Biodegradability: Aerobic: Not readily biodegradable

Trans-1-Chloro-3,3,3-trifluoropropene

96 hour LC50 – Oncorhynchus mykiss (rainbow trout): 38 mg/l (Method: OECD Test Guideline 203)
48 hour EC50 – Immobilization of Daphnia magna (Water flea): 82 mg/l (Method: OECD Test Guideline 202)
72 hour EC50 – Growth inhibition of Pseudokirchneriella subcapitata (green algae): 106.7 mg/l (Method: OECD Test Guideline 201)
72 hour NOEC – Growth rate of Pseudokirchneriella subcapitata (green algae): 115mg/l (Method: OECD Test Guidelines 201)

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

13. DISPOSAL CONSIDERATIONS

Comply with federal, state and local regulations. Do not puncture or incinerate cans.

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, Flammable
Hazard Class: 2.1
Identification No. UN1950
Packing Group: None

IMDG
Proper Shipping Name: Aerosols, Flammable
Hazard Class: 2.1
Identification No. UN1950
Packing Group: None

15. REGULATORY INFORMATION

US FEDERAL REGULATIONS:

TSCA: All ingredients are listed in TSCA inventory.
SARA 302: No ingredients in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Emission Reporting: None of the ingredients exceed the threshold reporting levels established by SARA Title III, Section 313.
SARA 311/312 HAZARDS: Acute Health Hazard & Sudden Release of Pressure Hazard

US STATE REGULATIONS:

California Proposition 65 Carcinogens and Reproductive Toxins: None of the ingredients are listed.

16. OTHER INFORMATION

HMIS Ratings:

Health	- 2
Flammability	- 2
Reactivity	- 0

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: SEPTEMBER 2015