1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-755
MS-755M
Vertrel SMT
Heavy Duty Solvent & Flux Remover
DPMS T0108A

Product Use: Cleaning Solvent & Flux Remover for electronic assemblies.

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
Serious Eye Damage/Irritation: Category 2B.
Specific Target Organ Toxicity (single exposure) (Eye, Central nervous system): Category 2
Specific Target Organ Toxicity (single exposure): Category 3

Label elements:
Signal word
Warning

Pictograms

Hazard Statements
Causes eye irritation.
May cause drowsiness or dizziness.
May cause damage to organs (Central nervous system, Eyes)

Precautionary Statements
Do not breathe mist/vapors/spray.
Wash skin thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Use only outdoors or in a well-ventilated area.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Call a POISON CENTER or doctor/ physician.
If eye irritation persists: Get medical advice/ attention.
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. 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

Chemical name	CAS No.	Approximate %
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	35 - 45
Trans,1,2-Dichloroethylene	156-60-5	20 - 40
Methanol	67-56-1	2 - 5
1,1,1,2-Tetrafluoroethane	811-97-2	16 - 23

4. FIRST AID MEASURES

Inhalation: Remove patient to fresh air. Get medical attention.

Eye: Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, emove 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.

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/effects, acute and delayed: May cause cardiac arrhythmia.
Skin contact may provoke the following symptoms: Dermatitis, Discomfort, Pain, Redness, Rash, Itching, Swelling of tissue, Eye damage
Eye contact may provoke the following symptoms: Irritation, Pain, Tearing, Swelling of tissue, Redness, Impairment of vision, Discomfort
Inhalation may provoke the following symptoms: Eye damage
Effects of breathing high concentrations of vapor may include: Tiredness, Drowsiness, Central nervous system effects, Convulsions

Adverse effects from repeated inhalation may include central nervous system effects
Ingestion may provoke the following symptoms: Lack of coordination, Narcosis, Eye damage
Aspiration may cause pulmonary edema and pneumonitis. Causes eye irritation. May cause drowsiness or dizziness. May cause damage to organs.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: This product is not flammable. **Test Method:** Ignition distance test and Enclosed space ignition test

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

Unsuitable extinguishing media: No applicable data available.

Special hazards: Vapors may form explosive mixture with air. Exposure to combustion products may be hazardous to health. Hazardous combustion products: Hydrogen fluoride, Carbonyl fluoride, Carbon oxides, Chlorine compounds.

Special Fire Fighting Instruction: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Further information: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate personnel to safe areas. Cool containers with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel): Evacuate personnel to safe area. Ventilate area, especially low or enclosed places where heavy vapors might collect. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g.by containment or barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Spill Cleanup: Contain spillage, and then collect with non-combustible 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. Vapors are heavier than air and accumulate in low areas. Use only with adequate ventilation. Use appropriate respiratory protection when ventilations is inadequate. Do not swallow. When using do not eat, drink, or smoke. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Storage Conditions: Storage Conditions: Store in a clean, cool, dry area. Do not store sources of heat, in direct sunlight or where temperatures exceed 120F/49C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TLV (ACGIH)	PEL (OSHA)
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	Not Established	Not Established
Trans,1,2-Dichloroethylene	200 ppm, TWA	200 ppm, 8 Hr. TWA
Methanol	200 ppm, TWA	200 ppm, 8 Hr. TWA
1,1,1,2-Tetrafluoroethane	Not Established	Not Established

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 to this material (eg. Viton) when prolonged or frequently repeated contact occurs. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.

Density: 1.37 g/cc @ 77°F/25°C

Vapor Density (Air=1): 4.4

pH Information: Neutral

Form: Aerosol

Color: Colorless

Percent Volatile by Volume: 100

Vapor Pressure: 485 mmHg @ 77°F/25°C

Solubility in H_2O: 3.4 g/l @ 77°F/25°C

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

Appearance: Clear & Colorless

Odor: Ether-like

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

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

Material and Conditions to Avoid: Open flames and high temperatures. Oxidizing agents.

Decomposition: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure: Inhalation. Skin contact. Ingestion. Eye contact..

Trans-1,2-Dichloroethylene

Acute Oral: LD50: 7902 mg/kg in rats
Acute Dermal: LD50: > 5,000 mg/kg in rabbits
Acute Inhalation: 4 hour LC50: 95.4 mg/l in rats. Test atmosphere: vapor. Method: OECD Test Guideline 403
Skin Corrosion/Irritation: Mild skin irritation in rabbits
Serious Eye Irritaion/ Eye Irritation: Mild eye irritation in rabbits. Reversing within 7 days.
Skin Sensitization: No data available
Respiratory Sensitization: No data available
Germ Cell Mutagenicity: Evidence does not support classification of a germ cell mutagen.
Carcinogenicity: Not classified based on available information.
Reproductive toxicity: Not classified based on available information.
STOT-single exposure: May cause drowsiness and dizziness.
STOT-repeated exposure: No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.
Aspiration toxicity: Not classified based on available information.

Methanol

Inhalation Acute toxicity: 3mg/l, 4 hours, animals (unspecified species)
Dermal Acute toxicity: 300 mg/kg, (estimated in humans)
Oral Acute Toxicity: 300 mg/kg, (estimated in humans)
Skin Corrosion/Irritation: No irritation, Rabbit
Serious Eye Irritaion/ Eye Irritation: No irritation, Rabbit
Skin sensitization: Not classified based on available information.
Respiratory Sensitization: Not classified based on available information.
Germ Cell Mutagenicity: Genotoxicity in vivo and vitro tests were negative.
Carcinogenicity: Not classified based on available information.
Reproductive Toxicity: Not classified based on available information.
STOT-single exposure: May cause damage to organs (Eyes, Central Nervous System)
STOT-repeated exposure: NOEL (90 days, Inhalation) in rats: 1.06 mg/l
Aspiration toxicity: Not classified based on available information.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity:

Trans-1,2-Dichloroethylene

96 hour LC50 in Lepomis marochirus (Bluegill sunfish): 135 mg/l
48 hour EC50 in Daphnia magna (Water flea): 220 mg/l
72 hour EC50 in Pseudokirchneriella subcapitata (Green algae): 36.36 mg/l

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

Methanol

96 hour LC50 in Lepomis marochirus (Bluegill sunfish): 15,400 mg/l
48 hour EC50 in Daphnia magna (Water flea): >10,000 mg/l
96 hour EC50 in Pseudokirchneriella subcapitata (Green algae): 22,000 mg/l
200 hour NOEC in Oryzias latipes (Orange-red killfish): 15,800 mg/l

Biodegradability: Readily biodegradable. 95% biodegradable in 20 days

13. DISPOSAL CONSIDERATIONS

If recycling is not practicable, dispose of in compliance with local regulations. Remove to a permitted waste disposal facility.

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.

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.

SARA 304 Extremely Hazardous Substances Reportable Quantity: This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Serious eye damage or eye irritation. Specific target organ toxicity (single or repeated exposure).

SARA 313 Regulated Chemicals: Methanol

California Proposition 65: This product contains chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm.

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 3
Flammability	- 0
Reactivity	- 0

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: OCTOBER 2017