

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-555
DPMS-C0716A
Heavy Duty Solvent & Flux Remover

Product Use: Solvent Cleaning & Flux Removal
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

Flammable aerosol: Category 2

Acute toxicity (Inhalation: vapor): Category 4

Specific Target Organ Toxicity (single exposure): Category 2 (Eye, Central nervous system)

Label elements:

Signal word

Warning

Pictograms



Hazard Statements

Flammable aerosol

Harmful if inhaled

May cause damage to organs

Precautionary Statements

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
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 a POISON CENTER or doctor/ physician, if you feel unwell.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Dispose of contents/ container in accordance with local, regional, national, and international regulations.

Other Hazards

Flammable aerosol. 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.

3. INGREDIENTS

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	138495-42-8	22 - 26
Trans,1.2-Dichloroethylene	156-60-5	65 - 70
Methanol	67-56-1	4 - 6
Carbon Dioxide	124-38-9	3 - 4

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, 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.

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 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: None known.

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

Personal precautions, protective equipment and emergency procedures: Evacuate personnel to safe area. Use personal protective equipment. Ventilate area. 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: Keep away from open flame or other ignition sources. 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 ventilation is inadequate. When using do not eat, drink, or smoke. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Storage Conditions: Store in a clean, dry place that is well-ventilated. Do not store near sources of heat, in direct sunlight or where temperatures exceed 125°F/52°C. Do not pierce or burn, even after use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TLV (ACGIH)</u>	<u>PEL (OSHA)</u>
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

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 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.

Percent Volatile by Volume: 100%

Density: 1.28 g/cc at 77°F/25°C

Vapor Pressure: To be determined

Vapor Density (Air=1): >1

Solubility in H₂O : To be determined

pH Information: Neutral

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

Form: Aerosol

Appearance: Clear

Color: Colorless

Odor: Ethereal

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard

Chemical stability: Stable at normal ambient conditions.

Possibility of hazardous reactions: Vapors form flammable mixture in air.

Material and Conditions to Avoid: None known.

Decomposition: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

1,1,1,2,2,3,4,5,5-Decafluoropentane

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

Acute Toxicity: Not classified based on available information.

Skin Corrosion/Irritation: Not classified based on available information.

Serious Eye Irritation/ Eye Irritation: Not classified based on available information.

Skin Sensitization: Not classified based on available information.

Respiratory Sensitization: Not classified based on available information
Germ Cell Mutagenicity: Not classified based on available information.
Carcinogenicity: Not classified based on available information.
Reproductive toxicity: Not classified based on available information.
STOT-single exposure: Not classified based on available information.
STOT-repeated exposure: Not classified based on available information.
Aspiration toxicity: Not classified based on available information.

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 Irritation/ Eye Irritation: 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: Negative for Embryo-fetal development in rats by inhalation (OECD Test Guideline 414)
STOT-single exposure: May cause drowsiness and dizziness.
STOT-repeated exposure: Inhalation: 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 estimated, 4 hours (vapor) (Based on harmonized classification in EU regulation 1272/2008, Annex VI)
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 Irritation/ Eye Irritation: No irritation, Rabbit
Skin sensitization: Negative in Guinea pig (Maximization Test)
Respiratory Sensitization: Not classified based on available information.
Germ Cell Mutagenicity: Genotoxicity in vivo and vitro tests were negative.
Carcinogenicity: Negative in Mouse, 18 months (inhalation-vapor).
Reproductive Toxicity: Fertility/early embryonic development - Negative in Mouse (ingestion)
Embryo-fetal development - Positive in Mouse (ingestion). The effects were only at maternally toxic doses.
STOT-single exposure: May cause damage to organs (Eyes, Central Nervous System)
STOT-repeated exposure: NOEL: 1.06 mg/l (90 days, Inhalation) in rats
Aspiration toxicity: Not classified based on available information

12. ECOLOGICAL INFORMATION

1,1,1,2,2,3,4,5,5,5-Decafluoropentane:

Ecotoxicity: No data available
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available

Other adverse effects

Results of PBT and vPvB assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Trans-1,2-Dichloroethylene

96 hour LC50 in *Lepomis macrochirus* (Bluegill sunfish): 135 mg/l
48 hour EC50 in *Daphnia magna* (Water flea): 220 mg/l
48 hour EbC50 in *Pseudokirchneriella subcapitata* (Green algae): 36.36 mg/l

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

Bioaccumulative potential: Partition coefficient: n-octanol/water: log Pow: 2.06

Mobility in soil: no data available.

Methanol

96 hour LC50 in *Lepomis macrochirus* (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

Bioaccumulative potential: Partition coefficient: n-octanol/water: log Pow: -0.77

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

Limited Quantity

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

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) - The United States Environmental Protection Agency has established a Significant New Use Rule (SNUR; 40 CFR 721.5645) for this product. This product contains one or more substances which requires export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D.

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 RQ.

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

SARA 313: This material contains the following component that is subject to reporting levels established by SARA Title III, Section 313: Methanol, 67-56-1; $\geq 4 - \leq 6\%$

California Proposition 65: This product contains Methanol which is known to the state of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 2
Flammability	- 2
Reactivity	- 1

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: MAY 2020

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.