



1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: MS-777
Vertrel XE

Product Use: 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

GHS Hazard classification

Not a hazardous substance or mixture according to 29 CFR 1910.1200.

GHS Label elements:

Pictogram: not required

Signal word: not required

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.

Rapid evaporation of the product may cause frostbite.

Misuse of intentional inhalation abuse may cause 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 | 95 - 97 |
| Ethanol | 64-17-5 | 1 - 5 |
| Methanol | 67-56-1 | < 1.0 |

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops.

Skin: Flush skin with soap and water after contact. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Get medical attention.

Oral: If swallowed, do not induce vomiting. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Get medical attention.

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.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flash Point: Does not flash

Method: TCC

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.

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 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. 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, eyes, or clothing. Wash thoroughly after handling.

Storage Conditions: Store in a well-ventilated place and keep container tightly closed. Do not allow stored product to exceed 52°C (125°F) to prevent leakage or potential rupture of container from pressure and expansion. Avoid storage with strong oxidizing agents.

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 | None Established | None Established |
| Methanol | 200 ppm, TWA | 200 ppm, 8 Hr. TWA |
| Ethanol | | 1000 ppm, 8 Hr. TWA |

Respiratory Protection: Avoid breathing vapors, mists or spray. Use with mechanical ventilation in enclosed or low places. Local exhaust should be used when a large amount is released. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Where concentrations are above the recommended limits or are unknown, appropriate respiratory protection should be worn. Use NIOSH/MSHA approved respirator.

Eye Protection: Avoid eye contact. Use chemical goggles or safety glasses with side shields.

Skin Protection: Avoid contact with skin. Use gloves impervious should be used when handling liquid.

Hygiene measures: Do not eat, drink or smoke when using this product. Do not breathe vapors or spray mist. Avoid contact with skin, eyes, or clothing. Wash exposed areas thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 126°F/52°C

Density: 1.52 g/cc @ 77°F/25°C

Vapor Density (Air=1): 7.3

pH Information: Neutral

Form: Liquid

Color: Colorless

Percent Volatile by Volume: 100

Vapor Pressure: 250 mmHg @ 77°F/25°C

Solubility in H₂O: 15g/l @ 77°F/25°C

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

Appearance: Clear & Colorless

10. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Material and Conditions to Avoid: Oxidizing agents.

Decomposition: No decomposition products are known.

Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

1,1,1,2,2,3,4,5,5,5-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.

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 Irritation/ 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.

Ethanol

Inhalation: 4 hour LC50: 124.7 mg/l, Rat
Oral: LD50: >5,000 mg/kg, Rat
Skin Irritation: No skin irritation, Rabbit
Eye Irritation: Eye irritation, reversing within 21 days, Rabbit
Skin Sensitization: Does not cause skin sensitization., Mouse
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: Not classified based on available information.
STOT-repeated exposure: Not classified based on available information.
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).

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
NOEC in *Oryzias latipes* (Orange-red killfish): 15,800 mg/l

Biodegradability: Readily biodegradable. 95% biodegradable in 20 days

Ethanol

96 hour LC50 – Flathead minnow: >1,000 mg/l
48 hour EC50 – *Ceriodaphnia* (water flea): >1,000 mg/l
72 hour ErC50 – *Chlorella vulgaris* (fresh water algae): 275 mg/l
72 hour EC10 – *Chlorella vulgaris* (fresh water algae): 11.5 mg/l

13. DISPOSAL CONSIDERATIONS

Comply with federal, state and local regulations. Remove to a permitted waste disposal facility.

14. TRANSPORT INFORMATION

U.S. DOT

Not Regulated

IATA

Not Regulated

IMDG

Not Regulated

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA: All ingredients are listed in TSCA inventory.

1,1,1,2,2,3,3,4,4,5,5,5-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 and 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.

16. OTHER INFORMATION

FOR INDUSTRIAL USE ONLY

REVISION DATE: MARCH 2018

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.