## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** MS-114C
DPMS-D0319B
Conformal Coating Stripper

**Product Use:** Conformal Coating Stripper

**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**
Acute toxicity (Oral): Category 4
Acute toxicity (Inhalation: vapor): Category 4
Skin Irritation: Category 2
Eye Irritation: Category 2
Reproductive toxicity: Category 1B
Specific Target Organ Toxicity (single exposure): Category 1
Aquatic Chronic: Category 3

**Label elements:**
**Signal word**
Danger

**Pictograms**

**Hazard Statements**
Harmful if swallowed or if inhaled
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May damage fertility or the unborn child.
Causes damage to organs (optic nerve).
Harmful to aquatic life with long lasting effects.

**Precautionary Statements**
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Avoid breathing mist/vapors/spray.
Wash skin thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Use in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water. If irritation occurs: Get medical attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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 attention.
If exposed or concerned: Call a poison center/doctor.
Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Dispose of contents/ container in accordance with local, regional, national, and international regulations.

**Other Hazards**
Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. In high concentrations asphyxiation may occur. Victim may not be aware of asphyxiation. This material may make the heart more susceptible to arrhythmias. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used. Effects of breathing high concentrations of vapor may include: Tiredness or drowsiness. Convulsions. May cause cardiac arrhythmia. Prolonged skin contact may defat the skin and produce dermatitis.

## 3. INGREDIENTS

| Material (s) | CAS No. | Approximate % |
|---|---|---|
| 1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee) | 138495-42-8 | 23 - 25 |
| 1,1,1,3,3-Pentafluorobutane (HFC-365mfc) | 406-58-6 | 19 - 21 |
| Trans,1.2-Dichloroethylene | 156-60-5 | 31 - 33 |
| Methanol | 67-56-1 | 4 |
| N-Methyl-2-Pyrrolidone | 872-50-4 | 19 - 21 |

## 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.

**Most important symptoms/effects, acute and delayed:** Harmful if inhaled. May cause respiratory irritation. Harmful is swallowed. Causes damage to organs (optic nerve). Swallowing a small quantity of this material will result in a serious health hazard. This material contains methanol, which when ingested, may cause acidosis and ocular toxicity ranging from diminished visual capacity to complete blindness, and possible death. May cause eye irritation. Prolonged exposure may cause skin irritation.

## 5. FIRE FIGHTING MEASURES

**Flammability:** This product is not flammable. Does not flash using TCC.

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

**Unsuitable extinguishing media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

**Special hazards:** The product is not flammable but may burn at high temperatures. Gas/vapor are heavier than air. May accumulate in confined spaces, particularly at or below ground level. Product is not explosive. Containers may rupture when exposed to excessive heat. Hazardous reactions will not occur under normal conditions.

**Special Fire Fighting Instruction:** Do not enter area without personal protective equipment. Exposure to decomposition products may be a hazard to health. Wear self-contained breathing apparatus, if necessary. Use water spray for cooling exposed containers. Do not allow run-off from fire-fighting to enter drains or water sources.

## 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. Use appropriate personal protection equipment.

**Environmental precautions:** Prevent material from entering sewers, waterways, or low areas. Should not be released into the environment.

**Spill Cleanup**: Contain spillage, and then collect with inert material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations

## 7. HANDLING AND STORAGE

**Handling:** Avoid exposure. 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. Container is hazardous when empty.

**Storage Conditions**: Store tightly sealed in a clean, dry place that is well ventilated. Do not store in temperatures that exceed 125$^{O}$F/52$^{O}$C. Avoid reducing agents, strong acids, strong bases and strong oxidizers.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| Exposure Limits: | TLV (ACGIH) | PEL (OSHA) | AEL* (DuPont) |
|---|---|---|---|
| 1,1,1,2,2,3,4,5,5,5-Decafluoropentane | Not Established | Not Established | 200 ppm, 8 & 12 Hr. TWA<br>400 ppm, Ceiling |
| 1,1,1,3,3-Pentafluorobutane | | | 1000 ppm, 8 & 12 Hr. TWA |
| Trans,1,2-Dichloroethylene | 200 ppm, TWA | 200 ppm, 8 Hr. TWA | 200 ppm, 8 & 12 Hr. TWA |
| Methanol | 200 ppm, TWA | 200 ppm, 8 Hr, TWA | 200 ppm, 8 & 12 Hr. TWA, Skin |
| N-Methyl-2-Pyrrolidone | Not Established | Not Established | |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which is lower than the AEL are in effect, such limits shall take precedence.

**Respiratory Protection:** Avoid breathing vapors, mists or spray. Use with sufficient ventilation especially for enclosed or low places. Vapors are heavier than air and can cause suffocation by reducing oxygen. 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/protective clothing that impervious to this material when prolonged or frequently repeated contact occurs.

**Prevention of Swallowing:** Do not eat or drink when using this product. Wash exposed areas thoroughly with soap and water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** 108-118°F/42-48°C

**Percent Volatile by Volume:** 100%

**Density:** 1.25 g/cc at 77°F/25°C

**Vapor Pressure:** 325 mm Hg at 77$^{O}$F/25$^{O}$C

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

**Solubility in $H_2O$ :** N.A.

**pH Information:** Neutral

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

**Form:** Liquid

**Appearance:** Clear

**Color:** Colorless

**Odor:** Ethereal

## 10. STABILITY AND REACTIVITY

**Reactivity:** Hazardous reactions will not occur under normal conditions.

**Chemical stability:** Stable at normal ambient conditions.

**Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**Material and Conditions to Avoid:** Direct sunlight. Extremely high and low temperatures. Reducing agents, Strong acids, Strong bases and Strong oxidizers.

**Decomposition:** This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Carbon oxides (CO, $CO_2$), Hydrogen Chloride, Hydrogen fluoride, Carbonyl fluoride, Fluorocarbons, and Nitrogen compounds.

## 11. TOXICOLOGICAL INFORMATION

**Animal Data**

**1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee)**

**Inhalation:** 4 hour LC50: 114mg/l in rats, Central nervous system effects, Convulsions
**Oral:** LD50: > 5,000 mg/kg in rats
**Dermal:** LD50: > 5,000 mg/kg in rabbits
**Skin Irritation:** No skin irritation, rabbit
**Eye Irritation:** No eye irritation, rabbit
**Skin Sensitization:** Did not cause sensitization on laboratory animals., guinea pig
**Repeated dose toxicity:** Inhalation, rat
No toxicologically significant effects were found.
**Reproductive toxicity:** Animal testing showed no reproductive toxicity.
**Teratogenicity:** Animal testing showed no developmental toxicity.

**HFC-365mfc:**

**Inhalation:** 4 hour LC50: > 100,000 ppm in rats
**Oral:** LD50: > 2000 mg/kg in rats
**Skin irritation:** No irritation in rabbits
**Eye irritation:** No irritation in rabbits
**Sensitization:** Did not cause sensitization on laboratory animals, guinea pig
**Chronic toxicity:** Inhalation, after a single exposure, dog, NOEL: 75,100 ppm, cardiac sensitization following adrenergic stimulation.
**Reproductive toxicity:** Effects on fertility, 29,971 ppm, NOAEC; Developmental Toxicity, 29,971 ppm NOAEC
**Remarks:** Health injuries are not known or expected under normal use. In vitro tests did not show mutagenic effects.

**Trans-1,2-Dichloroethylene**

**Oral:** LD50: 7902 mg/kg in rats
**Dermal:** LD50: > 5,000 mg/kg in rabbits
**Inhalation:** 4 hour LC50: 95.4 mg/l in rats
**Target Organs:** Central nervous system, narcosis
**Skin irritation:** Mild skin irritation in rabbits
**Eye irritation:** Mild eye irritation in rabbits
**Repeated dose toxicity:** Inhalation, 90 days in rats: No toxicologically significant effects were found.
Oral, 90 days in rats: No toxicologically significant effects were found.
**Mutagenicity:** Did not cause genetic damage in animals.
Test on bacterial or mammalian cell cultures did not show mutagenic effects.
**Reproductive toxicity:** Animal testing showed no reproductive toxicity.
**Teratogenicity:** Animal testing showed no developmental toxicity.

**Methanol**

**Inhalation Acute toxicity:** 3mg/l, animals (unspecified species)
Target Organs: Central nervous system, Eye, Central nervous system effects, narcosis, eye effects.
**Dermal Acute toxicity:** 300 mg/kg in rabbits (unspecified species)
Target Organs: Central nervous system, Eye, Central nervous system effects, narcosis, eye effects.
**Oral Acute Toxicity:** 100 mg/kg, animals (unspecified species)
Target Organs: Central nervous system, Eye, Central nervous system effects: narcosis, eye effects
**Skin irritation:** Slight or no irritation, Rabbit
**Eye irritation:** Slight irritation, Rabbit
**Skin sensitization:** Did not cause sensitization on laboratory animals, Guinea pig
**Carcinogenicity:** Not classifiable as a human carcinogen. Overall weight evidence indicates that the substance is not carcinogenic.
**Mutagenicity:** Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Overall weight of evidence indicates that the substance is not mutagenic.
Did not cause genetic damage in animals.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.
**Reproductive Toxicity:** No toxicity or reproduction. Evidence suggests the substance is not a reproductive toxin in animals.
**Teratogenicity:** Evidence suggests the substance is not a developmental toxin in animals.

**N-Methyl-2-Pyrrolidone**

**Acute Toxicity:**
**Oral:** LD50: 4,150 mg/kg in rats
**Dermal:** LD50: 8,000 mg/kg in rabbits
**Inhalation:** 4 hours LC50: >5.1 mg/l in rats

**Skin:** May cause skin irritation and/or dermatitis. Repeated exposure may cause skin dryness and cracking. Not a sensitizer.

**Eye:** Causes serious eye irritation. Irritation to eyes, reversing 7 to 21 days.

**Mutagenicity:** Non-mutagenic in various in-vitro and in-vivo assays.

**Carcinogenicity:** Not classified based on available information.

**Reproductive Toxicity:** May damage fertility or the unborn child. Clear evidence of adverse effects on sexual function and fertility, and/or on development based on animal experiments.

**Specific Target Organ Toxicity – single exposure:** Nose: Inhalation: May cause respiratory irritation.

**Specific Target Organ Toxicity – repeated exposure:** Not classified based on available information.
No observed adverse effect level: 169 mg/kg in rats by ingestion for 90 days.
No observed adverse effect level: 0.5 mg/l in rats by inhalation for 90 days,
No observed adverse effect level: 826 mg/kg by skin contact for 28 days.

**Aspiration toxicity:** Not classified based on available information.

## 12. ECOLOGICAL INFORMATION

**Aquatic Toxicity:**

**1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee):**

96 hour LC50 in fathead minnows: 27.2 mg/L
96 hour LC50 in rainbow trout: 13.9 mg/L
48 hour LC50 in Daphnia magna: 11.7 mg/L
72 hour EC50 in green algae: > 120 mg/L

**HFC-365mfc:**

96 hour LC50 in Fish (B.rerio): >200 mg/L
48 hour EC50 in Daphnia magna: >200 mg/L
72 hour NOEC in Algae (S. capricornutum): 13.2 mg/L

**Trans-1,2-Dichloroethylene**

96 hour LC50 in bluegill sunfish: 74 mg/l
48 hour LC50 in Daphnia magna: 79 mg/l
96 hour EC50 in green algae: 798 mg/l

**Methanol**

96 hour LC50 – Flathead minnow: 28,100 mg/l
48 hour EC50 – Water flea (Daphnia magna): > 10,000 mg/l
96 hour LC50 – Green algae (Selenastrum carpricornutum): 22,000 mg/l

**N-Methyl-2-Pyrrolidone**

96 hour LC50 – Bluegill sunfish (Lepomis macrochirus): 832 mg/l
24 hour EC50 – Water flea (Daphnia magna): > 1000 mg/l
72 hour EC50 – Green algae (Desmodesmus subspicatus): 600 mg/l
EC10 (activated sludge): 100 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.

1,1,1,2,2,3,4,5,5,5-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 313 Regulated Chemicals:** Trans-dichloroethylene, N-Methyl-2-Pyrrolidone, Methanol

**State Regulations (U.S.)**

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

**REACH (E.U.)**

**N-Methyl-2-Pyrrolidone** is an SVHC. It is considered to be toxic for reproduction.

## 16. OTHER INFORMATION

**NPCA-HMIS Ratings:**

| | |
|---|---|
| Health | - 2 |
| Flammability | - 1 |
| Reactivity | - 1 |

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

**FOR INDUSTRIAL USE ONLY**

**REVISION DATE: JULY 2015**