1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: **MS-485G**
EMI/RFI Conductive Coating

Product Use: EMI/RFI Conductive Coating

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
Eye irritation: Category 2A
Skin corrosion/irritation: Category 2
Reproductive toxicity: Category 2
Specific Target Organ Toxicity (single exposure): Category 3
Specific Target Organ Toxicity (repeated exposure): Category 2
Aspiration hazard: Category 1
Aquatic Acute: Category 2
Aquatic Chronic: Category 3
Gases under pressure – Liquefied Gas

Label elements:
Signal word
Danger

Pictograms

Hazard Statements
Causes serious eye irritation.
Causes skin irritation.
Harmful if inhaled.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.
Contains gas under pressure; may explode if heated.

Precautionary Statements
Handle after all safety precautions have been read and understood.
Avoid breathing mist/vapors/spray.
Wash skin thoroughly after handling.
Use in a well-ventilated area.
Avoid release to the environment.
Wear eye protection, protective clothing and protective gloves.
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.
IF ON SKIN: Wash with plenty of water.
Take off contaminated clothing and wash before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Get medical advice/attention is you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F
Pressurized container. Do not pierce or burn, even after use.

Other Hazards
Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. In high concentrations asphyxiation may occur. Symptoms may include loss of mobility/unconsciousness. 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	25 – 35
Toluene	108-88-3	10 – 14
Acetone	67-64-1	1 – 4
Nickel	7740-02-0	4 – 7
1,1,1,2-Tetrafluoroethane	811-97-2	40 - 50

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. Remove contact lenses, if present and easy to do. Continue to rinse. Get medical attention if necessary.

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

Oral: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a POISON CENTER/doctor/physician if you feel unwell.

5. FIRE FIGHTING MEASURES

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

Suitable Extinguishing Media: Alcohol resistant foam, Dry chemical powder, 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, including respiratory protection. Exposure to decomposition products may be a hazard to health. Wear self-contained breathing apparatus, if necessary. Use water spray and fog 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. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure area and call for assistance of trained personnel as soon as conditions permit.

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 breathing vapors or mist. Use only with adequate ventilation. Avoid contact with eyes, skin, or clothing. Do not eat, drink or smoke when handling this product. Wash thoroughly after handling. Do not handle until all safety operating conditions are established and maintained.

Storage Conditions: Store in a clean, 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
Toluene	20 ppm, TWA	200 ppm, 8 Hr. TWA
Acetone	750 ppm	1000 ppm
Nickel	1 mg/m3	1 mg/m3

Use only with adequate ventilation. Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places.

Eye Protection: Wear safety glasses or coverall chemical splash goggles. An eyewash and safety shower should be nearby.

Respiratory Protection: Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH approved respiratory protection.

Skin Protection: Where there is potential for skin contact have available and wear as appropriate impervious gloves. Protective gloves and chemical splash goggles should be used when handling liquid.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.

Density: 1.10 g/cc @ 77°F/25°C

Vapor Density (Air=1): 2.0 at 68°F/20°C

pH Information: N.A.

Form: Liquid

Color: Black

Percent Volatile by Volume: 91%

Vapor Pressure: approx. 40 psi at 68°F/20°C

Solubility in H_2O: Negligible

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

Appearance: Black Coating

Odor: Aromatic odor

10. STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical stability: Stable under normal ambient conditions.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Material and Conditions to Avoid: Direct sunlight. Extremely high and low temperatures. 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.

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.

Toluene

Oral: LD50: > 5,580 mg/kg in rats
Dermal: LD50: 12,196 mg/kg in rabbits
Inhalation: 4 hour LC50: 12,500 – 28,800 mg/m3 in rats
Skin corrosion/irritation: Skin irritation – 24 hours in rabbits
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: Genotoxicity in vitro – liver – DNA damage in rats
Reproductive Toxicity: Evidence of reproductive effects in humans.

Acetone

Oral: LD50: 5,800 mg/kg in rats
Inhalation: 8 hour LC50: 50,100mg/m3 in rats
Dermal: LD50: 7,426 mg/kg in guinea pig
Skin corrosion/irritation: Mild skin irritation – 24 hours in rabbits
Serious eye damage/eye irritation: Eye irritation – 24 hours in rabbits
Respiratory or skin sensitization: Does not cause skin sensitization.
Germ cell mutagenicity: Not available
Reproductive Toxicity: Not available
Specific target organ toxicity – single exposure: May cause drowsiness or dizziness.

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
96 hour LC50 in zebra fish: 13 mg/l
48 hour LC50 in Daphnia magna: 11.7 mg/l
72 hour EC50 in green algae: > 120 mg/l

Toluene

96 hour LC50 in Bluegill: 74 – 340 mg/l
96 hour LC50 in rainbow trout: 7.63 mg/l
7 day NOEC in fathead minnow: 5.44 mg/l
7 day LOEC in fathead minnow: 8.04 mg/l
24 hour EC50 in Daphnia magna: 8 mg/l
24 hour EC50 in Fresh water algae: 245 mg/l
24 hour EC50 in green algae: 10 mg/l

Acetone

96 hour LC50 in rainbow trout: 5,540 mg/l
48 hour LC50 in water flea: 8,800 mg/l
Toxicity to algae: No date available

13. DISPOSAL CONSIDERATIONS

Comply with Federal, State/Provincial and 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.

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.

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: DECEMBER 2016