1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: **MS-462H**
K0814B
Silicone Conformal Coating

Product Use: Conformal 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
Skin Sensitization: Category 1
Reproductive toxicity: Category 2
Specific Target Organ Toxicity (repeated exposure): Category 2
Aquatic Acute: Category 3
Aquatic Chronic: Category 3

Label elements:
Signal word
Warning

Pictograms

Hazard Statements
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.
May cause damage to organs (central nervous system) through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary Statements
Obtain special instructions before use.
Handle after all safety precautions have been read and understood.
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 eye protection, protective clothing and protective gloves.
IF ON SKIN: Wash with plenty of water. Wash contaminated clothing before reuse.
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.
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/ container in accordance with local, regional, national regulations.

Other Hazards
Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. In high concentrations asphyxiation may occur. Exposure to this material may aggravate those with a pre-existing heart condition. Excessive exposure to vapors may cause central nervous system effects including drowsiness and dizziness. Prolonged skin contact may defat the skin and produce dermatitis.

3. INGREDIENTS

Material (s)	CAS No.	Approximate %
Trans,1,2-Dichloroethylene	156-60-5	35 – 45
Trans-1-Chloro-3,3,3-trifluoropropene	102687-65-0	35 – 40
1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee)	138495-42-8	5 – 10
Mineral Spirits	64742-47-8	2 – 4
	8052-41-3	1 – 3
Toluene	108-88-3	1 – 4
Methyltrimethoxysilane	1185-55-3	< 1

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. Call a POISON CENTER/doctor/physician if you feel unwell.

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: 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

Flash Point: None **Method:** Pensky Martin Closed Cup

Suitable Extinguishing Media: Use media appropriate for surrounding fire.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TLV (ACGIH)	PEL (OSHA)	OTHER
Trans,1,2-Dichloroethylene	200 ppm, TWA	200 ppm, 8 Hr. TWA	200 ppm, 8 & 12 Hr. TWA*
Trans-1-Chloro-3,3,3-trifluoropropene	Not Established	Not Established	800 ppm, TWA**
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	Not Established	Not Established	200 ppm, 8 & 12 Hr. TWA* 400 ppm, Ceiling*
Mineral Spirits	100 ppm, TWA	500 ppm, TWA	
Toluene	20 ppm, TWA	200 ppm, 8 Hr. TWA	
Methyltrimethoxysilane	Not Established	Not Established	

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

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.

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: 90°F/32°C

Density: 1.21 g/cc @ 68°F/20°C

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

pH Information: Neutral

Form: Liquid form

Color: Colorless to greenish yellow

Percent Volatile by Volume: 93

Vapor Pressure: N.A.

Solubility in H_2O: Negligible

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

Appearance: Light greenish yellow liquid

Odor: Strong solvent 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 gas, Hydrofluoric acid, Halogenated compounds, Phosgene, Silicon oxide, Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Animal Data

Trans-1-Chloro-3,3,3-trifluoropropene

Acute inhalation toxicity: 4 hour LC50: 120000 ppm in rats.
Skin irritation: 4 hour OECD Test Guideline 404: No skin irritation in rabbits
Not classified as a skin irritant in animal testing.
Sensitization: Result: Does not cause skin sensitization.
Classification: Patch test on human volunteers did not demonstrate sensitization properties.
Cardiac sensitization threshold (dog): 25000 ppm.
Repeated dose toxicity: Inhalation: 4 weeks NOEL: 4500 ppm in rats
Note: Subacute toxicity
Genotoxicity in vitro: Mutagenicity (Salmonella typhimurium – reverse mutation assay). Result: negative
Genotoxicity in vivo: Species: rat & mice. Cell type: Bone marrow. Method: Mutagenicity (micronucleus test).
Result: negative
Reproductive toxicity: No-observed-effect level: 15,000 ppm in rabbits; 10,000 ppm in rats
Teratogenicity: No-observed-effect level: 15,000 ppm in rabbits; 10,000 ppm in rats

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.

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.

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.

12. ECOLOGICAL INFORMATION

Trans-1-Chloro-3,3,3-trifluoropropene

96 hour LC50 – Oncorhynchus mykiss (rainbow trout): 38 mg/l (Method: OECD Test Guideline 203)
48 hour EC50 – Immobilization of Daphnia magna (Water flea): 82 mg/l (Method: OECD Test Guideline 202)
72 hour EC50 – Growth inhibition of Pseudokirchneriella subcapitata (green algae): 106.7 mg/l (Method: OECD Test Guideline 201)
72 hour NOEC – Growth rate of Pseudokirchneriella subcapitata (green algae): 115mg/l (Method: OECD Test Guidelines 201)

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: > 120mg

Trans-1,2-Dichloroethylene

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

Toluene
96 hour LC50 in rainbow trout: 7.63 mg/l
7 day NOEC in fathead minnow: 5.44 mg/l
24 hour EC50 in Daphnia magna (Water flea): 8 mg/l
24 hour EC50 in Fresh water algae: 245 mg/l
24 hour EC50 in green algae: 10 mg/l

13. DISPOSAL CONSIDERATIONS

Comply with Federal, State/Provincial 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.

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: APRIL 2015