

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

Aspiration hazard: Category 2

Skin irritation: Category 2

Skin Sensitization: Category 1

Reproductive toxicity: Category 2

Specific Target Organ Toxicity (single exposure): Category 3

Specific Target Organ Toxicity (repeated exposure): Category 2

Label elements:

Signal word

Warning

Pictograms



Hazard Statements

May be fatal if swallowed and enters airways.

Causes skin irritation.

May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

May cause damage to organs (central nervous system) through prolonged or repeated exposure.

Precautionary Statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe mist/vapors/spray.

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear eye protection, protective clothing and protective gloves.

Contaminated work clothing should not be allowed out of the workplace.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.

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.

If skin irritation or rash occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/ container in accordance with local, regional, national regulations.

Other Hazards

In use, may form flammable/explosive vapor-air mixture. 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>
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	138495-42-8	5 – 10
Mineral Spirits	64742-48-9	4 – 6
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 a qualified person is available. Get medical attention.

Eye: Flush with large amounts of water. Remove contact lenses, if present and easy to do. Continue to rinse. Get medical attention.

Skin: Wash skin with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing before use. Get medical attention.

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

Most important symptoms/effects, acute and delayed: May cause cardiac arrhythmia.

Skin contact may provoke the following symptoms: Dermatitis, Discomfort, Pain, Superficial burning sensation, Redness, Rash, Itching, Swelling of tissue, Irritation

Eye contact may provoke the following symptoms: Irritation, Tearing, Discomfort, Redness

Effects of breathing high concentrations of vapor may include: Tiredness, Drowsiness, confusion, Dizziness, central nervous system effects, Convulsions.

Adverse effects from repeated inhalation may include central nervous system effects

Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness or dizziness.

Notes to Physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

5. FIRE FIGHTING MEASURES

Flash Point: None

Method: Pensky Martin Closed Cup

Suitable Extinguishing Media: Water spray, Alcohol-resistant foam, Carbon Dioxide (CO₂), Dry chemical.

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

Special hazards: Vapors may form explosive mixture with air. Exposure to combustion products may be a hazard to health. Containers may rupture when exposed to excessive heat.

Hazardous combustion products: Silicon oxides, Formaldehyde, Carbon oxides, Hydrogen fluoride, Fluorine compounds, Carbonyl fluoride, Chlorine compounds.

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate personnel to safe areas. Cool containers with water spray.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate personnel to safe area. 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. 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 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. Use with exhaust ventilation. Use appropriate respiratory protection when ventilation is inadequate. Use only in an area equipped with explosion-proof exhaust ventilation. Keep away heat and sources of ignition. Take precautionary measures against static discharges. When using do not eat, drink, or smoke. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Storage Conditions: Store tightly sealed in a clean, dry place, and well ventilated place. Keep in properly labeled containers. Do not store in temperatures that exceed 125°F/52°C, because the containers could leak or rupture from pressure and expansion. Avoid strong oxidizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (ACGIH)</u>	<u>TWA (OSHA)</u>
Trans,1,2-Dichloroethylene	200 ppm	200 ppm
Trans-1-Chloro-3,3,3-trifluoropropene	Not Established	Not Established
1,1,1,2,2,3,4,5,5,5-Decafluoropentane	Not Established	Not Established
Mineral Spirits	Not Established	Not Established
Toluene	20 ppm	200 ppm
Methyltrimethoxysilane	Not Established	Not Established

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

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: Where there is potential for skin contact have available and wear as appropriate impervious gloves. 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: 90°F/32°C

Percent Volatile by Volume: 93

Density: 1.21 g/cc @ 68°F/20°C

Vapor Pressure: N.A.

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

Solubility in H₂O: Negligible

pH Information: Neutral

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

Form: Liquid form

Appearance: Light yellow liquid

Color: Colorless to light yellow

Odor: Strong solvent odor

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Vapors may form flammable mixture in the air. In use may form flammable/explosive vapor-air mixture.

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

Decomposition: This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Carbon oxides (CO, CO₂), Hydrogen Chloride gas, Hydrogen Fluoride gas, Carbon halides, Benzene, Formaldehyde.

11. TOXICOLOGICAL INFORMATION

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

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

Acute Oral: LD50: > 5000 mg/kg in rats

Acute Inhalation (vapor): 4 hour LC50: 114 mg/l in rats

Acute Dermal: LD50: > 5000 mg/kg in rats

Skin Corrosion/Irritation: No skin irritation in rabbits.

Serious Eye Irritation/ Eye Irritation: No eye irritation in rabbits.

Skin Sensitization: No skin sensitization in Guinea pigs.

Respiratory Sensitization: Not classified based on available information.

Germ Cell Mutagenicity: Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity: Not classified based on available information.

Reproductive toxicity: Weight of evidence does not support classification as a germ cell mutagen.

STOT-single exposure: Not classified based on available information.

STOT-repeated exposure: No significant health effects observed in animals at concentrations of 1mg/l/6h/d or less.

Aspiration toxicity: Not classified based on available information.

Trans-1,2-Dichloroethylene

Acute Oral: LD50: 7902 mg/kg in rats. Method: OECD Test Guideline 420

Acute Dermal: LD50: > 5,000 mg/kg in rabbits. Method: OECD Test Guideline 402

Acute Inhalation: 4 hour LC50: 95.5 mg/l in rats. Test atmosphere: vapor. Method: OECD Test Guideline 403

Skin Corrosion/Irritation: Mild skin irritation in rabbits. Method: OECD Test Guideline 404

Serious Eye Irritation/ Eye Irritation: Eye irritation in rabbits. Reversing within 7 days. Method: OECD Test Guideline 405

Skin Sensitization: Not classified based on available information.

Respiratory Sensitization: Not classified based on available information.

Germ Cell Mutagenicity: In vitro and In vivo – Not Mutagenic. Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity: Not classified based on available information.

Reproductive toxicity: Embryo-fetal development: Negative in rat by inhalation. Method: OECD Test Guideline 414

STOT-single exposure: May cause drowsiness and dizziness.

STOT-repeated exposure: No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less by inhalation.

Aspiration toxicity: Not classified based on available information.

Toluene

Oral: LD50: 5,580 mg/kg in rats (OECD Test Guideline 401)

Dermal: LD50: 12,196 mg/kg in rabbits

Inhalation (vapor): 4 hour LC50: 25.7 mg/l in male rats & 30 mg/l in female rats (OECD Test Guideline 403)

Skin corrosion/irritation: Irritating to skin in rabbits (OECD Test Guideline 404)

Serious eye damage/eye irritation: No eye irritation in rabbits (OECD Test Guideline 405)

Respiratory or skin sensitization: Maximisation Test: Negative in Guinea pigs (OECD Test Guideline 406)

Germ cell mutagenicity: In vitro and vivo tests did not show mutagenic effects.

Carcinogenicity: Animal testing did not show any carcinogenic effects.

Reproductive toxicity: Animal testing did not show any effects on fertility.

STOT-single exposure: Inhalation - Target organs: Central nervous system. May cause drowsiness or dizziness.

STOT-repeated exposure: Inhalation - May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity: May be fatal if swallowed and enters airways.

Mineral Spirits

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

Acute Toxicity: May be fatal if swallowed and enters airways.

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: May be fatal if swallowed and enters airways.

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): > 215 mg/l (Method: OECD Test Guideline 201)

72 hour NOEC – Growth rate of *Pseudokirchneriella subcapitata* (green algae): 115 mg/l (Method: OECD Test Guidelines 201)

Persistence and degradability: Not readily biodegradable.

Bioaccumulative potential: Accumulation in organisms is not expected.

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

96 hour LC50 in Oncorhynchus mykiss (rainbow trout): 13.9 mg/l
96 hour LC50 in Pimephales promelas (fathead minnow): 27.2 mg/l
96 hour LC50 in Danio rerio (zebra fish): 13 mg/l
48 hour LC50 in Daphnia magna (Water flea): 11.7 mg/l
72 hour EC50 in Pseudokirchneriella subcapitata (Green algae): >120 mg/l
21 days NOEC in Daphnia magna (Water flea): 1.72 mg/l

Biodegradability: Not readily biodegradable.

Bioaccumulative potential: Bioaccumulation is unlikely.

Mobility in soil: No data available

Trans-1,2-Dichloroethylene

96 hour LC50 in Lepomis macrochirus (Bluegill sunfish): 135 mg/l. Based on data from similar materials.
48 hour EC50 in Daphnia magna (Water flea): 220 mg/l. Method: EPA-660/3-75-009
72 hour EC50 in Pseudokirchneriella subcapitata (Green algae): 36.36 mg/l. Method: OECD Test Guideline 201

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

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

Toluene

96 hour LC50 in Oncorhynchus mykiss (rainbow trout): 5.8 mg/l
48 hour LC50 in Ceriodaphnia dubia, semi-static test: 3.78 mg/l
72 hour EbC50 in Pseudokirchneriella subcapitata (green algae), Biomass: 12.5mg/l (Method: OECD Test Guideline 201)
16 hour IC50 in bacteria: 29 mg/l

40 days NOEC in fish, flow-through test, growth: 1.4 mg/l

7 days NOEC in Ceriodaphnia dubia (water flea), number of offspring: 0.74 mg/l

Biodegradability: Readily biodegradable. Method: OECD Test Guideline 301C

Bioaccumulative potential: Bioconcentration potential is low (Log Pow < 3)

Partition coefficient: n-octanol/water: log Pow: 2.73

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) - The United States Environmental Protection Agency has established a Significant New Use Rule (SNUR; 40 CFR 721.5645) for this product. Also, this product requires an export notification under TSCA Section 12(b) and 40 CFR Part 707 Subpart D.

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 - 0

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: NOVEMBER 2021

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.