

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: ShieldSys™ 462S
Advanced Silicone Conformal Coating

Product Use: Conformal Coatings

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

Flammable Liquid: Category 2
Aspiration hazard: Category 1
Skin corrosion/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

Danger

Pictograms



Hazard Statements

Highly flammable liquid and vapor
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 through prolonged or repeated exposure.

Precautionary Statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe mist/vapors/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
IF INHALED: Remove person to fresh air and keep in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF SKIN irritation or rash occurs: Get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use CO2, dry chemical, or foam for extinction.
Store in a well-ventilated, cool place. Keep container tightly closed
Dispose of contents/container to an approved waste disposal plant.

Other Hazards

Static-accumulating flammable liquid. Vapors may form explosive mixture with air.

3. INGREDIENTS

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
Toluene	108-88-3	32 - 36
Methyltrimethoxysilane	1185-55-3	2 - 4
Mineral Spirits	64742-48-9	2 - 10

4. FIRST AID MEASURES

Inhalation: Remove patient to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Give oxygen as necessary if a qualified person is available. Get medical attention.

Eye: Immediately flush with plenty 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 be fatal if swallowed and enters airways. May cause drowsiness and dizziness. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure. Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information: Take off all contaminated clothing immediately. If exposed or concerned: Get medical advice/attention. Ensure the medical personnel are aware of the material involved (show the label, if possible), and take precautions to protect themselves. Show this safety data sheet to the doctor. Wash contaminated clothing before use.

5. FIRE FIGHTING MEASURES

Flammability: This product is flammable.

Flash Point: 50°F/10°C

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. Vapors are heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

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: Flammable Liquid. Eliminate all ignition sources. 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 soak up with sand, oil dry or other noncombustible absorbent materials. Use non-sparking tools. 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 may travel a considerable distance and flash back. Do not spray on an open flame or other ignition source. Use only with adequate ventilation. Use appropriate respiratory protection when ventilation is inadequate. Use only in an area equipped with explosion-proof exhaust ventilation. When using do not eat, drink, or smoke. Avoid contact with skin, eyes, or clothing. Wash thoroughly after handling. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. To prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity to reduce the accumulation of static electricity.

Storage Conditions: Store in a cool, dry place that is well-ventilated. Keep tightly closed and in properly labeled container. Keep away from heat and sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (ACGIH)</u>	<u>TWA (OSHA)</u>
Mineral Spirits	Not Established	Not Established
Toluene	20 ppm	200 ppm
Methyltrimethoxysilane	Not Established	Not Established

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: Avoid contact with skin. 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.

General Hygiene: Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 156°F/69°C

Percent Volatile by Volume: N.A.

Density: 0.99 g/cc at 77°F/25°C

Vapor Pressure: N/A

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

Solubility in H₂O: None

pH Information: N.A.

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

Form: Liquid

Appearance: Clear

Color: Colorless to light yellow

Odor: Strong Aromatic

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Highly flammable liquid and vapor. Vapors may form explosive mixture with air. Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents.

Material and Conditions to Avoid: Exposure to moisture. Handling operations that can promote accumulation of static charges. Heat, flames, and sparks. Oxidizing agents.

Decomposition: This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Benzene, Methanol, Formaldehyde.

11. TOXICOLOGICAL 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.

Methyltrimethoxysilane

Acute Oral: LD50: 11,685 mg/kg in rats

Acute Dermal: LD50: > 9500 mg/kg in rabbits

Acute Inhalation: 4 hour LC50: 51.6 mg/l in rats

Skin corrosion/irritation: Brief contact is essentially nonirritating to skin

Serious eye damage/eye irritation: No eye irritation

Skin sensitization: Has caused allergic skin reactions when tested in guinea pigs.

Respiratory sensitization: No relevant data found.

Germ cell mutagenicity: No relevant data found.

Carcinogenicity: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Reproductive Toxicity: No relevant data found.

STOT-single exposure: Not a toxicant.

Aspiration toxicity: Not a aspiration hazard

12. ECOLOGICAL INFORMATION

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

Mineral Spirits

Ecotoxicity

Not classified as an environmental hazard. However, this does not exclude the possibility that large or frequent spills can have a damaging effect on the environment.

Persistence and degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Methyltrimethoxysilane

Ecotoxicity

96 hour LC50 in *Oncorhynchus mykiss* (rainbow trout): > 110 mg/l (Method: OECD Test Guideline 203)

48 hour EC50 in *Daphnia magna* (Water flea): > 122 mg/l (Method: OECD Test Guideline 202)

72 hour ErC50 in *Pseudokirchneriella subcapitata* (green algae): >120 mg/l (Method: OECD Test Guideline 201)

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (Toluene, Methyltrimethoxysilane)

Hazard Class: 3

Identification No. UN 1993

Packing Group: II

IATA

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (Toluene, Methyltrimethoxysilane)

Hazard Class: 3

Identification No. UN1993

Packing Group: II

IMDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (Toluene, Methyltrimethoxysilane)

Hazard Class: 3

Identification No. UN1993

Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations

CERCLA Reportable Quantity: Toluene, 108-88-3: Component RQ is 1000 lbs.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards: Skin corrosion or irritation. Respiratory or skin sensitization. Reproductive toxicity. Specific target organ toxicity (single or repeated exposure).

SARA 313 Regulated Chemicals: Toluene

US State Regulations

California Proposition 65: This product contains chemicals including Ethylbenzene, Benzene, Distillates (petroleum), known to the State of California to cause cancer and Toluene, Methanol, Benzene are known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 2
Flammability	- 3
Physical Hazards	- 0

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

FOR INDUSTRIAL USE ONLY

DATE: May 16, 2025

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.