

## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** ShieldSys™ 472X  
Urethane 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

Flammable liquids: Category 1  
Aspiration Hazard: Category 1  
Skin corrosion/irritation: Category 2  
Serious eye damage/eye irritation: Category 2B  
Carcinogenicity: Category 2  
Reproductive toxicity: Category 2  
Specific Target Organ Toxicity (single exposure): Category 3  
Specific Target Organ Toxicity (repeated exposure): Category 2

### Label elements

#### Pictograms



**Signal word:** Danger

### Hazard Statements

H225 Highly flammable liquid and vapor.  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H320 Causes eye irritation.  
H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H373 May cause damage to organs through prolonged or repeated exposure.

### **Precautionary Statements**

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe mist/vapors/spray.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
P331 Do NOT induce vomiting.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340+P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER, a doctor/physician if you feel unwell.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P332+P313 If skin irritation or rash occurs: Get medical attention.  
P337+P313 If eye irritation persists: Get medical attention.  
P362 Take off contaminated clothing and wash before reuse.  
P370+P378 In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam for extinction.  
P403+P235+P233 Store in a well-ventilated place. Keep cool. Keep container tightly closed.  
P501 Dispose of contents/container to an approved waste disposal plant.

### **3. INGREDIENTS**

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
Trans-1,2 Dichloroethylene	156-60-5	65 – 70
Toluene	108-88-3	10 – 12
1-Methoxy-2-propanol acetate	108-65-6	2 – 4
Xylene	1330-20-7	1 – 2
Ethyl benzene	100-41-4	< 0.5
N-Propyl Acetate	109-60-4	8 – 12

### **4. FIRST AID MEASURES**

**Inhalation:** Remove patient to fresh air. If not breathing, give artificial respiration. Give oxygen as necessary if qualified personnel are available. Get medical attention immediately.

**Eye:** Immediately 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.

**Skin:** Wash skin with plenty of water for at least 15 mins. (use mild soap, if available). Wash contaminated clothing before use. Get medical attention if necessary.

**Oral:** Do NOT induce vomiting. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Call a POISON CENTER/doctor/physician.

## 5. FIRE FIGHTING MEASURES

**Flammability:** This product flammable

**Suitable Extinguishing Media:** Alcohol resistant foam, Dry chemical powder, Carbon dioxide (CO<sub>2</sub>)

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

**Special hazards:** The product is flammable. Gas/vapor are heavier than air. Vapors may ignite at distant ignition sources and flash back. Containers may rupture when exposed to excessive heat.

**Special Fire Fighting Instruction:** Do not enter areas without personal protective equipment, including respiratory protection. Exposure to toxic fumes under fire conditions. Wear self-contained breathing apparatus. Vapor concentrated in an area can ignite with spark, flame or high intensity source of heat. Use water spray to cool containers. Do not allow run-off from firefighting to enter drains or water sources.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Evacuate personnel to safe area. Ventilate area, especially low or enclosed places where heavy vapor might collect. Remove all sources of ignition. Use appropriate personal protection equipment. Beware of vapors accumulating to form explosive concentrations.

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

**Methods and materials for containment and clean up:** 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 contact with eyes, skin, or clothing. Do not inhale vapor or mist. Wash thoroughly after handling. Keep away from heat, sparks, and open flame. Take measures to prevent the buildup of electrostatic charge. Use non-sparking tools to open and close containers. Do not consume food, drink or smoke in areas that may be contaminated with this material.

**Storage Conditions:** Keep container tightly closed and store in a clean, cool and dry area that is well-ventilated. Do not store sources of heat, in direct sunlight or where temperatures exceed 120°F/49°C.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TLV (ACGIH)</u>	<u>PEL (OSHA)</u>
Trans-1,2 Dichloroethylene	200 ppm TWA	200 ppm TWA
Toluene	20 ppm TWA	200 ppm TWA
1-Methoxy-2-propanol acetate	Not Established	Not Established
Xylene	100 ppm TWA	100 ppm TWA
Ethyl benzene	20 ppm TWA	100 ppm TWA
N-Propyl Acetate	100 ppm TWA	200 ppm

**Eye Protection:** Wear overall chemical splash goggles. An eyewash and safety shower should be nearby.

**Respiratory Protection:** Where there is potential for airborne exposures, 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.

**Percent Volatile by Volume:** N.A.

**Density:** 1.17 g/cc @ 77°F/25°C

**Vapor Pressure:** N.A.

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

**Solubility in H<sub>2</sub>O:** Negligible

**pH Information:** Neutral

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

**Form:** Liquid

**Appearance:** Clear

**Color:** Colorless to light amber

**Odor:** Solvent odor

## 10. STABILITY AND REACTIVITY

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

**Chemical stability:** Stable under normal conditions of storage and use.

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

**Material and Conditions to Avoid:** Direct sunlight, and high temperatures. Heat, flames and sparks. Strong oxidizing agents.

**Decomposition:** This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Carbon oxides (CO, CO<sub>2</sub>), Nitrogen oxides, Isocyanates, Hydrogen chloride gas.

## 11. TOXICOLOGICAL 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:** Evidence does not support classification of a germ cell mutagen.

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

**Reproductive toxicity:** Test Type: Embryo-fetal development. Inhalation in rats. Negative. Method: OECD Test Guideline 414

**STOT-single exposure:** May cause drowsiness and dizziness.

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

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

## Toluene

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

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

**Acute 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:** Maximization 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.

## 1-Methoxy-2-propanol acetate

**Acute Oral:** LD50: > 5,000 mg/kg in female rats (OECD Test Guideline 401)

**Acute Inhalation:** 4 hour LC50: > 100ppm in rats.

**Acute Dermal:** LD50: > 5,000 mg/kg in rabbits.

**Skin Corrosion/Irritation:** No skin irritation in rabbits (OECD Test Guideline 404)

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

**Respiratory or skin sensitization:** Not a skin sensitizer in Guinea pigs (OECD Test Guideline 406)

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

## N-Propyl Acetate

**Acute Oral:** LD50: 9370 mg/kg in rats

**Inhalation:** May cause drowsiness and dizziness. Headache. Nausea, vomiting.

**Skin corrosion/irritation:** No adverse effects due to skin contact are expected.

**Serious eye damage/eye irritation:** Causes serious eye irritation.

**Respiratory or skin 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:** May cause drowsiness or dizziness.

**STOT-repeated exposure:** Not classified based on available information.

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

## Xylene

**Acute Dermal:** LD50: 14 mg/kg, Rabbit

**Acute Oral:** LD 50: 3523 - 5500 mg/kg, Rat

**Acute Inhalation:** 4 hour LC50: 4550 ppm in rats.

## 12. ECOLOGICAL INFORMATION

### **Trans-1,2 Dichloroethylene**

96 hour LC50 in *Lepomis marochirus* (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  
48 hour EbC50 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

**Mobility in soil:** No data available

### **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

### **N-Propyl Acetate**

96 hour LC50 in *Pimephales promelas* (Fathead minnow): 56 – 64 mg/l.

**Biodegradability:** No data is available on degradability.

**Bioaccumulative potential:** Partition coefficient n-octanol/water: log Pow: 1.23

**Mobility in soil:** No data available

**Other adverse effects:** No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 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:** Flammable liquid, n.o.s. (trans-1,2 Dichloroethylene, Toluene, N-Propyl Acetate)

**Hazard Class:** 3

**Identification No.** UN1993

**Packing Group:** II

### IATA

**Proper Shipping Name:** Flammable liquid, n.o.s. (trans-1,2 Dichloroethylene, Toluene, N-Propyl Acetate)

**Hazard Class:** 3

**Identification No.** UN1993

**Packing Group:** II

**IMDG****Proper Shipping Name:** Flammable liquid, n.o.s. (trans-1,2 Dichloroethylene, Toluene, N-Propyl Acetate)**Hazard Class:** 3**Identification No.** UN1993**Packing Group:** II**15. REGULATORY INFORMATION****U.S. Federal Regulations****TSCA:** All ingredients are listed as active or are exempt from listing on the TSCA inventory.**CERCLA Hazardous Substance list:** Xylene (CAS# 1330-20-7), Toluene (CAS# 108-88-3), Ethyl benzene (CAS# 100-41-4), Tran-Dichloroethylene (CAS#156-60-5)**SARA 302:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.**SARA 313:** This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR 372): Toluene (108-88-3), Xylene (CAS# 1330-20-7), Ethylbenzene (CAS# 100-41-4).**State Regulations (U.S.)****California Proposition 65:** This product contains Ethyl benzene, which is known to the State of California to cause cancer and Toluene which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).**16. OTHER INFORMATION****FOR INDUSTRIAL USE ONLY****REVISION DATE: SEPTEMBER 6, 2023**

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.