

Section 1. Product and Company Identification

Product Name: Syntho-Plug
Supplier: CSNRI | 621 Lockhaven Drive. Houston, TX 77073 | +1 281.590.8491
Emergency Phone Number: 800.424.9300 (CHEMTREC)
 +1 703.741.5970 (Outside the US)
Product Description: Polyurethane foam pre-impregnated with water activated resin
Product Use: Leak containment
Chemical Name or Synonym: N/A

Section 2. Hazards Identification
Classification of the substance or mixture

Skin corrosion/irritation – Category 2
 Skin sensitization - Category 1
 Eye damage/eye irritation – Category 2
 Acute toxicity/inhalation – Category 4
 Sensitization / Respiratory – Category 1
 Specific Target Organ Toxicity (Single Exposure) – Category 3
 Carcinogenicity – Category 2
 Specific Target Organ Toxicity (Repeated Exposure) – Category 2

Label Elements:

Hazard Statements:

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma or breathing difficulties if inhaled
 H335 May cause respiratory irritation
 H351 Suspected of causing cancer (inhalation)
 H373 May cause damage to organs through prolonged or repeated exposure (inhalation)

Signal Word: Danger

Precautionary Statement:

P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P262 Do not get in eyes, on skin, or on clothing.
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

Section 3. Composition/ Information on Ingredients

Component	CAS#	Weight %
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Polymeric Diphenylmethane diisocyanate	9016-87-9	55 – 75
Hydroxyl Terminated Poly (oxalkylene) Polyol	25791-96-2	25 – 40
P-toluenesulfonyl isocyanate	4083-64-1	< 1
Titanium Dioxide	25322-68-3	< 4

Section 4. First Aid Measures
First Aid Measures for Accidental:

Eye Exposure: Flush with copious amount of water. Preferably lukewarm, for at least 15 minutes, holding eyelids open at all times. Refer individual to a physician or ophthalmologist for immediate follow up.

Skin Exposure: Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. Get under safety shower after removing clothing. Seek medical attention if irritation develops after area is washed.

Inhalation: Move to an area free from risk of further exposure. Administer oxygen as needed. Obtain medical attention. Asthmatic –type symptoms may develop and may be immediate or delayed up to several hours. Consult physician should this development occur.

Ingestion: Do not induce vomiting. Give one to two cups of milk or water to drink. Do not give anything by mouth to an unconscious person, consult a physician.

Most important symptoms/effects, acute and delayed:

Acute Inhalation: MDI/ vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, and lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, and chills) has also been reported. These symptoms can be delayed up to several hours after exposure.

Acute Eye: Liquid, aerosols or vapor are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. Damage, however is usually reversible.

Acute Skin contact: Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

Acute ingestion: Irritation and corrosive action can occur in the mouth, stomach tissue and digestive tract. Symptoms can include: sore throat, abdominal pain, nausea, vomiting and diarrhea.

Over-exposure signs/symptoms: Overexposure to isocyanates has also been reported to cause lung damage, (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent. Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperactivity), skin allergies, eczema.

Notes to physician:

Eyes: Stain for evidence of corneal injury. If cornea is burned, install antibiotic steroid preparation frequently. Work place vapors have produced reversible corneal epithelial edema impairing vision.

Skin: Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn.

Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound.

Respiratory: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

Section 5. Fire Fighting Measures

Extinguishing Media: Dry chemical, carbon dioxide, foam, and water spray for large fires.

Special Fire Fighting Procedures: During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion (see Reactivity and Stability Section). At temperatures greater than 400 F (204 C) polymeric MDI can polymerize and decompose which can cause pressure build up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

Special Protective Equipment for Fire-fighters: Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. Wear positive pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes helmet, coat, pants, boots, and gloves).

Unusual Fire and Explosion Hazards: Not specified

Hazardous Decomposition Materials (Under Fire Conditions): Combustion produces carbon monoxide, oxides of nitrogen, and traces of HCN, MDI vapors or aerosols.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: No action shall be taken involving any personal risk or without suitable training. Keep people at a distance and stay upwind. Evacuate surrounding areas. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Cleanup and Disposal of Spill: Evacuate and ventilate spill area. Dike spill to prevent entry into water system. Decontaminate floor with decontamination solution letting stand for at least 15 minutes. Absorb isocyanates with sawdust or other absorbents. Shovel into suitable unsealed containers. Treat with neutralizing solution: mixture of water (80%) with non-ionic surfactant Tergitol TMN-10 (20%); or water (90%), concentrated ammonia (3-8%) and detergent (2%). Add about 10 parts of neutralizer per part of isocyanate with mixing. Allow to stand uncovered for 48 hours to let CO2 escape.

Section 7. Handling and Storage

Precautions for safe handling: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Avoid contact with skin and eyes. Do not breathe aerosols or vapors. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Ensure good ventilation/exhaustion at the workplace.

Conditions for safe storage including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Storage at temperature between 64 °F and 86 °F. Keep away from humidity and water. Keep container tightly closed and sealed until ready for use. Do not reseal if contamination is suspected.

Section 8. Exposure Controls / Personal Protection

Component	Exposure limits		
	ACGIH	NIOSH	OSHA-PELs
Poly (oxalkylene) Polyol	Not established	ND	Not established
P-toluenesulfonyl isocyanate	Not established	ND	Not established
Titanium Dioxide	15mg/m ³	ND	15mg/m ³

Appropriate Engineering Controls: Local exhaust should be used to maintain levels below the TLV whenever MDI is processed, heated or spray applied. Standard reference sources regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

Personal Protective Equipment:

Respiratory Protection: In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Permeation resistant gloves (butyl rubber, nitrile rubber, and polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing.

Section 9. Physical and Chemical Properties

Physical Appearance:	Fiberglass cloth coated with viscous resin.
Odor:	Pungent
Odor Threshold:	Not established
pH:	Not Established
Melting Point Range:	< 32 F ° (0 °C) for MDI
Boiling point:	406 °F (208 °C) at 5 mm Hg for MDI
Flash Point:	390°F (198.8°C)
Method Used:	Pensky-Martens Closed Cup
Evaporation rate:	ND
Flammability Limits (vol/vol%):	Lower: N/A Upper: N/A
Vapor Pressure:	Less than 10 at 5 mm Hg at 77 F (25 C) for MDI
Vapor Density:	8.5 for MDI (Air = 1)
Relative Density:	ND
Bulk density:	10.25 lbs/gal
Specific Gravity:	1.23 (resin)
Water Solubility:	Not soluble. Reacts slowly with water to liberate CO2 gases.
Partition coefficient (n-octanol/water):	ND.
Auto-ignition Temperature:	ND
Decomposition Temperature:	ND
Viscosity:	ND
% Volatile by volume:	Negligible

Section 10. Stability and Reactivity

Reactivity: No specific test data related to reactivity available for this product.

Chemical Stability: Stable under standard use and storage conditions.

Possibility of Hazardous reactions: Hazardous polymerization can occur. Contact with moisture, other materials, which react with isocyanates, or temperatures about 400 F (204 C), may cause polymerization.

Conditions to Avoid: Contamination with water and high temperatures above 400 F.

Incompatible Materials / Chemicals: Water, amines, strong bases, alcohols will cause some corrosion to copper alloys and aluminum.

Hazardous Decomposition Products: By high heat and fire; carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors or aerosols.

Section 11. Toxicological Information

For Diphenylmethane Diisocyanate (Monomeric and Polymeric):

Oral LD50 (rats): Greater than 115,800 mg/kg

Dermal LD50 (rabbits): Greater than 5,010mg/kg but less than 7,940 mg/kg

Inhalation LC50: The 4-hour LC50 for polymeric MDI in rats ranges from 370 to 490 mg/m³. The LC50 for monomeric MDI was estimated to be between 172 and 187 mg/m³.

Eye effects: Slight to moderate irritation.

Skin effects: Slight to moderate irritation.

Chronic Health Effects:

Sensitization: MDI has been shown to produce dermal sensitization in laboratory animals. Evidence of respiratory sensitization has also been observed in guinea pigs. In addition, there is some evidence suggestive of cross-sensitization between different types of diisocyanates.

Chronic toxicity: In a combined chronic inhalation toxicity/oncogenicity study, rats were exposed to an aerosol of polymeric MDI for 6 hours per day, 5 days per week for one or two years. The exposure concentrations were 0, 0.2, 1.0 and 6.0 mg/m³. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg/m³. The No Observable Effect Level (NOEL) was 0.2 mg/m³.

Carcinogenicity: In the study described above (chronic toxicity), the occurrence of pulmonary adenomas and a single pulmonary adenocarcinoma was considered to be related to MDI. These tumors were observed only in rats exposed to the high concentration of 6.0 mg/m³.

Mutagenicity: Positive (Salmonella microsome test with metabolic activation; cell transformation assay) as well as negative (mouse lymphoma specific locus mutation test with or without metabolic activation) results have been observed "in vitro". However, MDI was negative in an "in vivo" (mouse micronucleus) assay.

Developmental toxicity: Rats were exposed to polymeric MDI at air concentrations of 0, 1, 4 and 12 mg/m³ during days 6 – 15 of gestation. Maternal Toxicity (including mortality) was observed at the highest concentration of 12 mg/m³ accompanied by embryo and fetal toxicity. However, no teratogenic effects were observed even at this lethal concentration.

Delayed and immediate effects and also chronic effects from short and long term exposure: No specific data.

Section 12. Ecological Information

Ecotoxicity: No specific data

Aquatic toxicity: LC50 – 24 hours (static): Greater than 500 mg/liter for Daphnia Magna, Limnea Stagnalis, and Zebra fish (Brachydanio rerio) for both polymeric and monomeric MDI

Persistence and degradability: No specific data

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Other adverse effects: No further relevant information available.

Section 13. Disposal Considerations

Waste treatment methods: Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Waste must be disposed of in accordance with federal, state and local environmental control regulations. Incineration is the preferred method

Uncleaned packagings: Dispose of in accordance to all local, state, and/or national legislation. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Empty decontaminated containers should be crushed to prevent reuse. Do not heat or cut empty container with electric or gas torch (see Fire Fighting Measures and Stability & Reactivity). Gases may be highly toxic.

Section 14. Transport Information

DOT / ADR / AND / IMDG / IATA

UN number:

Not regulated



UN proper shipping name: N/A
Transport hazard class: N/A
Packing group: N/A
Environmental hazard: No

Section 15. Regulatory Information**TSCA STATUS: On TSCA Inventory****SARA Regulations:**

Section 302 Extremely hazardous substances: None

SECTION 313 Toxic chemicals: Polymeric Diphenylmethane Diisocyanate, CAS # 9016-87-9, 100%;
Contained in this polymeric MDI product is 4,4'-Diphenylmethane Diisocyanate, CAS # 101-68-8, Upper Bound
45%. Toluene Diisocyanate less than 1 %

RCRA STATUS: MDI is not listed as a hazardous waste.

Section 15. Regulatory Information**National Fire Protection Association Hazard Ratings – NFPA(R):**

Health Hazard: 3
Flammability: 1
Reactivity: 1

Key Legend Information:

N/A – Not Applicable

ND – Not Determined

ACGIH – American Conference of Governmental Industrial Hygienists

OSHA – Occupational Safety and Health Administration

PEL – Permissible Exposure Limit

NIOSH – National Institute for Occupational Safety and Health

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