



Material Safety Data Sheet

Product Name TROSEAL 450 HYDROPHILIC PU GROUT

1 Product and Company Identification

Intended Use Seals water leakage through cracks or joints
Name of Company Troseal Building Materials Pte Ltd
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2 Composition / Information of Ingredients

Name	Wt. %
MDI Prepolymer	20 – 40
Polymeric Diphenylmethane Diisocyanate	45 – 65
2,2-dimethyl-1-(methylolthyl)-1,3-propanedyl bis(2-methylpropanoate)	10 – 20

3 Hazards Identification

Emergency Overview

Physical Appearance Brown Liquid

Immediate Concerns Irritating to eyes, respiratory system, and skin. Inhalation at levels above the occupational exposure limit could cause respiratory sensitization and risk of serious damage to respiratory system. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyperreactive response to even minimal concentrations of diisocyanates may develop in sensitized persons.

Potential Health Effect

Eyes Liquids, vapors, or mist are irritating to the eyes and can cause stinging, burning, lachrymation, tearing.

Skin Moderate irritate. Repeated and/or prolonged contact may cause skin sensitization.

Ingestion Ingestion may cause irritation of the gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy, or diarrhea.

Inhalation Inhalation of vapors or mist at concentrations above the Thresholds Limit Value can cause respiratory tract irritation (Nose, throat, lungs). Chronic inhalation can result in sensitization.

Eyes Contact may cause moderate irritation consisting of transient redness, swelling, and mucous membrane discharge to the conjunctiva. Prolonged contact with the eyes may cause reversible corneal opacity to occur, with no visual impairment expected.



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Signs and Symptoms of Overexposure

Eyes	Contact may cause moderate irritation consisting of transient redness, swelling, and mucous membrane discharge to the conjunctiva. Prolonged contact with the eyes may cause reversible corneal opacity to occur, with no visual impairment expected.
Skin	Contact may cause minor irritation consisting of transient redness and/or swelling. Individuals with skin sensitization can develop these symptoms from contact with a small amount of liquid or vapors.
Ingestion	Ingestion may cause irritation of gastrointestinal tract and gastrointestinal discomfort with any or all of the following symptoms: Nausea, vomiting, lethargy or diarrhea.
Inhalation	Vapors or mist, especially as generated from heating the material or as from exposure in poorly ventilated areas or confined spaces, are irritating and cause nasal discharge coughing, discomfort in nose and throat, allergic respiratory reactions when exposed to amounts below the exposure guidelines.
Medical Conditions Aggravated	Asthma, other respiratory disorders (bronchitis, emphysema, bronchia, hyperreactivity), skin allergies, eczema.
Routes of Entry	Inhalation, skin contact, eye contact, ingestion.
Sensitization	Any individual with isocyanate sensitization should not be exposed to this product. These individuals can react to exposure well below the Threshold Limit Value. Symptoms can occur immediately or several hours after exposure.

4 First Aid Measures

Eyes	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.
Skin	Remove contaminated clothing. Wash affected area thoroughly with soap and water. Wash clothing thoroughly before reuse. For severe exposure, seek medical attention immediately. For lesser exposure, seek medical attention if swelling or redness occurs, or if irritation persists after being washed. Irrigate copiously with clean, fresh water for at least 10 minutes, holding eyelids apart and seek medical advice.
Ingestion	Do not induce vomiting. Never give anything by mouth to a drowsy or unconscious person. If the individual is conscious, rinse mouth with water. Give 1 or 2 cups of water to drink. Seek immediate medical attention.
Inhalation	Remove individual from exposure, keep warm and at rest. Obtain immediate medical attention. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is labored, oxygen should be administered by qualified personnel. Apply artificial respiration if breathing has ceased or shows signs of falling. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours.
Antidotes	No specific antidote.
Notes to Physician	Symptomatic and supportive therapy as needed. Following severe exposure, medical follow-up should be monitored for at least 48 hours. May cause respiratory sensitization or asthma-like symptoms. Respiratory symptoms, including pulmonary edema, may be delayed.



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5 Fire-fighting Measures

Flash Point and Method	> (200°) Closed Cup
Extinguishing Media	Dry Chemical, Carbon Dioxide, Chemical Foam, Water Fog, or spray
Hazardous Combustion Products	Carbon Monoxide, Carbon Dioxide, Nitrous Oxide and HCN
Explosion Hazards	Closed containers could rupture explosively at elevated temperatures generated under fire conditions. During a fire, gases of a highly toxic nature may be generated by thermal decomposition or combustion. Use water to cool fire-exposed containers.
Fire Fighting Procedures	Isolate fuel supply from fire, Use water spray to cool fire-exposed surfaces and containers. Fire fighters should wear self-contained breathing apparatus in addition to emergency firefighting protective clothing.
Comments	Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

6 Accidental Release Measures

Small Spill	Clean up spills wearing proper personal protective equipment. (See section VIII) Absorb with dry chemical absorbent, earth, sand, or any other inert material. Place in a chemical waste container. Move to outside well-ventilated area. Treat with 10 parts decontamination to 1 part isocyanate. Mix well. Allow to stand uncovered 48 hours before disposal.
Large Spill	<p>Eliminate all ignition sources. Evacuate and ventilate the area. Create a dike or trench to contain materials. Prevent entry into waterways, sewers, basements or confined area. Clean-up personnel should wear appropriate personal protection equipment (see section VIII).</p> <p>Absorb with dry chemical absorbent, earth, sand, or any other inert material. Do not use combustible material such as sawdust. Place in a chemical waste container. Move to outside well-ventilated area. Treat with 10 parts decontamination solution to 1 part isocyanate. Mix well. Allow to stand uncovered 48 hours before disposal. Clean spill area with decontamination solution and allow to stand for 15 minutes before removal, test atmosphere for MDI.</p>
Decontamination Solution	concentrated ammonia (5%), detergent (2%) and water (93%)
Comments	Dispose of by any standard method of disposal in accordance with good industrial practice and in compliance with federal, state, and local environment protection regulations.



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7 Handling and Storage

Precautions	Keep containers tightly sealed. Keep containers away from heat source and/or open flames. Do not store containers in open sunlight. Store in cool, well-ventilated area.
Handling	Wear proper personal protective equipment. Use in a well-ventilated area. Avoid smoking, bare lights, or ignition sources. Keep container securely sealed when not in use. Avoid physical damage to containers.
Storage	Containers can rupture if exposed to high heat. Protect from atmospheric moisture. Keep containers sealed in order to avoid contamination. Do not reseal if contaminated. After container has been opened, blanket with nitrogen before resealing. Store indoor in a cool, well-ventilated area.
Storage Temperature	(55°F) minimum to (120°F) maximum
Shelf Life	1 year
Special Sensitivity	Material is hygroscopic and react with water. It will form cured particles or a film when exposed to atmospheric moisture. Blanket containers with nitrogen before resealing.
Comments	Reacts slowly with water to produce carbon dioxide which may rupture closed containers.

8 Exposure Controls / Personal Protection

Exposure Guidelines

Exposure Limits				
Ingredient	OSHA PEL		ACGIH TLV	
	ppm	mg/m ³	ppm	mg/m ³
MDI Prepolymer	NE	NE	NE	NE
Polymeric Diphenylmethane Diisocyanate	-	0.02*	-	0.05
2,2- dlmethyl-1-(methylthyl)-1,3-propanedllyl bis(2-methylpropanoate)	NE	NE	NE	NE

OSHA Table comments: NE = Not Established *=Ceiling

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
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Personal Protective Equipment

Eyes and Face	Wear safety glasses with side shields (or goggles) and a face shield.
Skin	The following protective materials are recommended: Gloves – neoprene, nitrile rubber, butyl rubber. Thin latex disposable gloves should be avoided for repeated or long-term use.
Protective Clothing	Where contact is likely, wear chemical resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.
Work Hygienic Practices	Follow good normal hygiene practices. Avoid contact with skin. Avoid eating, drinking, or smoking when using this product. Wash thoroughly after use.
Other Use Precautions	Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with respiratory problems including asthmatic-type conditions, chronic bronchitis, or other chronic respiratory diseases or recurrent skin eczema or skin allergies should be evaluated for their suitability of working with this product. Once a person is diagnosed as sensitized, no further exposure of the material that caused sensitization should be permitted. The Occupational Exposure Limits do not apply to previously sensitized individuals.
Other Protective Equipment	Safety Showers and eye wash stations.

9 Physical and Chemical Properties

Physical and Chemical Properties	
Color	Brown
Physical State	Liquid
Freezing Point	Not Determined
Boiling Point	Not Determined
Specific Gravity	1.090 to 1.110 (water=1)
Viscosity	300 to 400 cps at (77°F)
Odor	Slightly Musty
Solubility in Water	Insoluble

10 Stability and Reactivity

Conditions to avoid	Temperature extremes. Container contamination. Moisture.
Stability	Stable under recommended storage conditions
Polymerization	Polymerization may occur at elevated temperatures in the presence of alkaline, tertiary amines, and metal compound.
Hazardous Decomposition Products	Carbon Monoxide, Carbon Dioxide, Nitrous Oxide, and HCN
Incompatible Materials	This product will react with any material containing active hydrogens such as water, alcohol, amines, bases and acids. The reaction with water is very slow under 122°F, but is accelerated at higher temperatures.



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11 Toxicological Information

Name	Oral LD50 (rat)	Dermal LD50	Inhalation LC50
Polymeric Diphenylmethane Diisocyanate	>5000 mg/kg	>5000 mg/kg	490 mg/m ³ /4h (respirable aerosol)
2,2- dlmethyl-1-(mothylthyl)-1, 3-propanedyl bis(2-methylpropanoate)	>3200 mg/kg	18840 mg/kg (rat)	>5.3 mg/L

Eye Effects	The vapor, aerosol, and liquid irritant.
Skin Effects	Moderate irritant. Repeated and/or prolonged contact may cause skin sensitization. There is limited evidence from animal studies that skin contact may play a role in respiratory sensitization. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemical or in maintenance work.
Sensitization	This material is a respiratory sensitizer and irritant. Repeated and; or prolonged contact may cause skin sensitization and irritation.
Mutagenicity	There is no substantial evidence of mutagenic potential.
Reproductive Effects	No adverse reproductive effects are anticipated.
General Comments	A study was conducted where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmospheres of respirable polymeric MDI aerosol at concentrations of 0, 0.2, 1 or 6mg/m ³ . No adverse effects were observed at 0.2mg/m ³ . At the 1mg/m ³ concentration, minimal nasal and lung irritant effects were seen. Only at the top concentration (6.0 mg/m ³) was there an increased incidence of a benign tumor of the lungs (adenoma). One malignant pulmonary tumor (adenocarcinoma) was seen in the 6.0mg/m ³ group. MDI administration to rats in the study did not change the distribution and incidence of tumors from those seen in control animals. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow materials in the lung. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur. There are reports that chronic exposure to diisocyanates by inhalation may result in permanent decreases in lung function.

12 Ecological Information

Ecotoxicological Information	Polymeric MDI: LC50 (Zebra Fish) >1000 mg/L. EC50 (Daphnia magna) (24 hour) >1000mg/L. EC50 (e.Coli) >100mg/L
Chemical Fate Information	Immersion with water, but will react with water to produce inert and nonbiodegradable solids.
General Comments	No testing for product as a whole.
Disposal Method	Disposal should be in accordance with local, state, provincial or national regulations.
Empty Container	Empty containers should be decontaminated and either passed to an approved drum recycler or destroyed.
General Comments	The generation of waste should be avoided or minimized whenever possible. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways.



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14 Transport Information

DOT (Department of Transportation)

Proper Shipping Name	Not restricted when shipped below RQ.
Technical Name	Compound Resin
Other Shipping Information	Single containers with 5000 LBS or more of 4/4'-methylene Diphenyl Diisocyanate are regulated as: Other Regulated Substances, Liquid, N.O.S (Methylene Diphenyl Diisocyanate), 9 , NA3082, PGill, RQ.
AIR (ICAO/IATA)	Proper Shipping Name: Not restricted.
Vessel (IMO/IMDG)	Proper Shipping Name: Not restricted.

The information of this MSDS is based on the present state of our knowledge. As the user's working conditions are beyond our knowledge and control. The product is not to be used for other purposes than those specified under section 1 without first obtaining written handling instruction. It is always the responsibility of the user to take all local rules and legislation. The information in this MSDS is meant as a description of the safety requirements of our product; it is not to be considered as a guarantee of the products' properties.

Prepared/ Last Amended On: 8 February 2018

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