



ENVIRONMENTAL COATINGS LLC.

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MATERIAL SAFETY DATA SHEET

MSDS ID#: 1000

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Section 1 – Product and Company Identification

Product Name: Environmental Coatings Flex Grout

Distributed by: Environmental Coatings LLC.
4702 E. Virginia Street
Mesa, AZ 85215-9101
(480) 984-7608

24 Hr. Emergency Telephone Number:
Chemtrec: 800-424-9300

Section 2 – Composition/Information on Ingredients

Chemical Name	Wt. %	CAS#
MDI Prepolymer	30 – 50	Not disclosed
Polymeric Diphenylmethane Diisocyanate	40 – 60	9016-87-9
2,2-dimethyl-1-(methylethyl)-1,3-propanediyl bis(2-methylpropanoate)	5 – 15	6846-50-0

Section 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 hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitized persons.

Potential Health Effects

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

Skin: Moderate irritant. 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 TLV can cause respiratory tract irritation. (Nose, throat, lungs.) Chronic inhalation can result in sensitization.

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

Section 3 – Hazards Identification (Continued)

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, and breathing obstruction. Individuals with respiratory sensitization may experience 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 TLV. Symptoms can occur immediately or several hours after exposure.

Section 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 areas 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.

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 to 2 cups of water to drink. Seek immediate medical attention.

Inhalation: Remove patient 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 failing. 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.

Section 5 – Fire Fighting Measures

Flash Point and Method: >(200°F) 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 fire fighting protective clothing.

Comments: Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

Section 6– Accidental Release Measures

Small Spill: Clean up spills wearing proper personal protective equipment. (See Section 8) 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 solution to 1 part isocyanate. Mix well. Allow to stand uncovered 48 hours before disposal.

Large Spill: 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 areas.

Section 6– Accidental Release Measures (continued)

Clean-up personnel should wear appropriate personal protection equipment (see Section 8). 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.

General Procedures: Decontamination solution: concentrated ammonia (5%), detergent (2%), and water (93%).

Release Notes: Spills and releases may have to be reported to Federal and/or local authorities. See section 15 regarding reporting requirements.

Comments: After allowing material to harden, dispose of by any standard method of disposal in accordance with good industrial practice and in compliance with federal, state, and local environmental protection regulations.

Section 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 containers 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 indoors 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 reacts 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. This reaction accelerates at higher temperatures. See Section 10 for more information on precautions concerning storage and handling of this material.

Section 8 – Exposure Controls/Personal Protection

Exposure Guidelines: OSHA Hazardous Components (29 CFR 1910.1200)

Chemical Name	Exposure Limits				
		OSHA PEL		ACGIH TLV	
		ppm	mg/m ³	ppm	mg/m ³
MDI Prepolymer	TWA	NE	NE	NE	NE
Polymeric Diphenylmethane Diisocyanate	TWA		0.2*		0.05
2, 2-dimethyl-1-(methylethyl)-1, 3-propanediyl bis (2-methylpropanoate)	TWA	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.

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 should be selected and used in accordance with ‘Guidelines for the Selection of Chemical Protective Clothing’ published by ACGIH.

Section 8 – Exposure Controls/Personal Protection (Continued)

Respiratory: During application, if exposure of product can exceed the PEL/TLV, use appropriate respiratory protection to protect from overexposure. Appropriate respiratory protection includes approved supplied-air respirators (SAR) operated in a positive pressure mode or, in non-IDLH (immediately dangerous to life and health) atmospheres, NIOSH approved air purifying respirators (APR) provided an appropriate cartridge change-out schedule is implemented. [29 CFR 1910.134 (d)(3)(iii)] All respirators used should follow the OSHA Respiratory Standard 29 CFR 1910.134.

Protective Clothing: Avoid skin contact with material. Wear protective clothing to cover all exposed skin.

Work Hygienic Practices: Follow good normal hygiene practices. Avoid contact with skin. Avoid eating, drinking, or smoking while using this product. Wash hands 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 the sensitization should be permitted. The Occupational Exposure limits do not apply to previously sensitized individuals.

Other Protective Equipment: Safety showers and eye wash stations.

Section 9 – Physical and Chemical Properties

Physical State:	Liquid	Odor:	Slightly musty
Color:	Brown	Boiling Point:	Not Determined
Freezing Point:	Not Determined	Solubility in Water:	Insoluble
Specific Gravity:	1.14 to 1.16 (water=1) at (77°F)		
Viscosity:	600 to 800 cps at (77°F)		

Section 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 alkalis, tertiary amines, and metal compounds.

Hazardous Decomposition Products: Carbon Monoxide, Carbon Dioxide, Nitrous Oxide, and HCN.

Incompatible materials: This product will react with any materials 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.

Section 11 – Toxicological Information

Ingredients	Oral LD₅₀ (rat)	Dermal LD₅₀ (rabbit)	Inhalation LC₅₀ (rat)
Polymeric Diphenylmethane	> 5000 mg/kg	> 5000 mg/kg	490 mg/m ³ /4h
Diisocyanate			(respirable aerosol)
2,2-dimethyl-1-(methylethyl)-1,3-propanediyl bis(2-methylpropanoate)	> 3200 mg/kg	>18840 mg/kg (rat)	> 5.3 mg/L

Eye Effects: The vapor, aerosol, and liquid are 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 chemicals or in maintenance work.

Carcinogenicity: Not classified as a carcinogen by IARC, NTP, OSHA or ACGIH.

Mutagenicity: There is no substantial evidence of mutagenic potential.

Reproductive Effects: No adverse reproductive effects are anticipated.

Section 11 – Toxicological Information (Continued)

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 6 mg/m³. No adverse effects were observed at 0.2 mg/m³. At the 1 mg/m³ concentration, minimal nasal and lung irritant effects were seen. Only at the top concentration (6.0 mg/m³) was there an increased incidence of a benign tumor of the lungs (adenoma). One malignant pulmonary tumor (adenocarcinoma) was seen in the 6.0 mg/m³ group. MDI administration to rats in this 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 material 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.

Section 12 – Ecological Information

Ecotoxicological Information: Polymeric MDI: LC₅₀ (Zebra Fish) >1000 mg/L. EC₅₀ (Daphnia magna) (24 hour) >1000 mg/L. EC₅₀ (E. Coli) >100 mg/L.

Chemical Fate Information: Immiscible with water, but will react with water to produce inert and non-biodegradable solids.

General Comments: No testing for product as a whole.

Section 13 – Disposal Considerations

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.

RCRA Hazard Class: This material is not a hazardous waste under RCRA 40 CFR 261. The treated waste is not a hazardous material under RCRA 40 CFR 261.

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.

Comments: Refer to Section 6 for additional information.

Section 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 5,000 lbs or more of 4, 4'-Methylene Diphenyl Diisocyanate are regulated as: Other Regulated Substances, Liquid, N.O.S. (Methylene Diphenyl Diisocyanate), 9, NA3082, PGIII, RQ.

AIR (ICAO/IATA) - Proper Shipping Name: Not restricted

Vessel (IMO/IMDG) - Proper Shipping Name: Not restricted

Section 15 – Regulatory Information

United States

SARA Title III (Superfund Amendments and Reauthorization Act):

311/312 Hazard Categories: Toxic, irritating substance, sensitizing substance

313 Reportable Ingredients: Diisocyanate compounds

CERCLA (Comprehensive Response, Compensation, and Liability Act)

CERCLA RQ: 4,4-Methylene Diphenyl Diisocyanate (CAS 101-68-8) has a 5,000 lb RQ (reportable quantity). Any spill or release above the RQ must be reported to the National Response Center (800-424-8802).

Section 15 – Regulatory Information (continued)

TSCA (Toxic Substance Control Act): TSCA Regulatory: All ingredients are on TSCA inventory.

RCRA Status: Not hazardous if discarded in its purchased form. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20-24).

OSHA Hazard Comm. Rule: This material is classified as a hazardous material under the criteria outlined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 16 – Other Information

Prepared by: L. P.

HMIS Rating: Health – *2 Flammability – 1 Physical Hazard: 1

HMIS Rating Notes: If present, the asterisk signifies a chronic health hazard.

Rating System: 0 = low hazard to 4 = high hazard

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Key Legend Information:

ACGIH: American Conference of Governmental Industrial Hygienists

EPA: Environmental Protection Agency

IARC: International Agency for Research on Cancer

NTP: National Toxicology Program

OEL: Occupational Exposure Limit

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

TWA: Time Weighted Average