

MATERIAL SAFETY DATA SHEET

DECATHANE 200 PART B

SECTION 01: PRODUCT IDENTIFICATION

Product Identifier:	Waterborne Urethane Crosslinker
WHMIS Classification:	B2, D2A, D2B
Product Class:	Class 3
UN Number:	UN 1263
Manufacturer's Name:	Concretech Inc., #106, 2567- 192 Street, Surrey, BC, V3S 3X1, Canada,
Supplier's Name	Concretech Inc., #106, 2567- 192 Street, Surrey, BC, V3S 3X1, Canada,
Preparation Date of MSDS:	November 25 th , 2003
Revision Date of MSDS:	April 13 th , 2011
MSDS Prepared By:	Farhad Kazemian
Phone Number of Preparer:	1 604 210 1147
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SECTION 02: HAZARDOUS INGREDIENTS

Ingredients:	%	CAS#	Exposure Limit (TWA)	LD/50, Route, Species	LC/50, Route, Species
Homopolymer of HDI	60-100%	28182-81-2	0.5 mg/m ³	>5,000 mg/kg (oral rat) >5,000 mg/kg (dermal rabbit)	390-453 mg/m ³ 4 hr (rat)
Hexamethylene Diisocyanate	0.2%	822-06-0	0.005 ppm	710 mg/kg (oral rat) 570 mg/kg (dermal rabbit)	310-350 mg/m ³ 1-4 hr (rat)

SECTION 03: HAZARDOUS IDENTIFICATION

Route of Entry:	Skin contact. Inhalation. Eye contact
Skin Contact:	Irritant. Can Cause reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. cured material is difficult to remove.
Skin Absorption:	Not available
Eye Contact:	Product liquid, aerosol or vapours are irritating. Can cause tearing, reddening and swelling. May cause temporary corneal injury.
Inhalation (Acute):	Vapour/mists at concentrations above the exposure limits can irritate (burning sensation) the mucous membranes in the respiratory tract. Causes runny nose, sore throat, coughing, chest discomfort, difficult breathing and reduced pulmonary functioning. Persons with pre-existing, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis spasm and pulmonary edema. Chemical or hypersensitive pneumonitis, with flu-like symptoms has also been reported. These symptoms can be delayed up to the several hours after exposure. Effects are usually reversible.
Ingestion:	Irritant. Can cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Emergency Overview:	N/A
WHMIS Symbols:	N/A
Effects of Chronic Exposure	As a result of previous repeated overexposure or a single large dose, certain individuals develop sensitization which will cause them to react to a later exposure to product at levels well below the TLV. Symptoms including chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed. There are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Prolonged or repeated exposure may cause lung damage, including a decrease in lung function. Possible risk of irreversible effects. Prolonged contact may cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Prolonged vapour contact may cause conjunctivitis.

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SECTION 04: FIRST AID MEASURES

Eye Contact:	In case of contact, immediately flush eyes, keeping eyelids open, with plenty of water for at least 15 minutes.
Skin Contact:	Immediately flush skin with plenty of soap and water. Remove contaminated clothing. Wash clothing before use.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen, obtain medical attention.
Ingestion:	Do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical attention.
Additional Information	In all cases, if irritation persists seek medical attention: Note to physician: Eye: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapours have produced reversible corneal epithelial edema. Impairing vision. Skin: This compound is known skin sensitizer. 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 essential symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

SECTION 05: FIRE FIGHTING MEASURES

Flammable (Yes / No)	Not available
Yes	N/A
Means of Extinction	Carbon dioxide. Dry chemical. Foam. In cases of large fires, water spray should be used.
Flash Point (°C / Method)	>93.33 Pensky-Martens Closed Cup. (ASTM D-93).
Upper Flammable Limit (% by Volume)	Not available
Lower Flammable Limit (% by Volume)	Not available
Autoignation Temperature (°C)	N/A
Explosion Data- Sensitivity to Impact	N/A
Explosion Data- Sensitivity to Static Discharge	N/A
Hazardous combustion Products	Carbon monoxide. Carbon dioxide. Oxides of nitrogen. Dense black smoke. Hydrogen cyanide. Isocyanates. Other undetermined compounds.
Special Fire Fighting Procedures	Firefighter should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Cool fire-exposed containers with cold water spray. Heat will cause pressure buildup and may cause explosive rupture.

SECTION 06: ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures	Evacuate all non-essential personnel. Ventilate. Eliminate all sources of ignition. Dike area to prevent spreading. Wear full protective equipment, including respiratory equipment during clean-up. Prevent runoff into drains, sewers, and other waterways. Stop leak if safe to do so.
Major Spills	If temporary control of isocyanate vapour is required, a blanket of protein foam may be placed over spill. If transportation spill occurs, call CANUTEC at (613) 996-6666. Large quantities may be pumped into closed, but not sealed, containers for disposal.
Minor Spills	Cover spill area with suitable absorbent material. Pour decontamination solution over spill area and allow to react for at least 10 minutes. Shovel into suitable containers and add further amounts of decontamination solution. Add about 10 parts of neutralizer per part of isocyanate with mixing. Decontamination Solution: Mixture of water (80%) with non-ionic surfactant Tergitol TMN – 10 (20%), or; water (90%), concentrated ammonia (3-8%) and detergent (2%). Allow to stand uncovered for 72 hours to let carbon dioxide escape.
Clean up	Decontaminate floor with decontamination solution, letting stand for at least 15 minutes.

SECTION 07: HANDLING AND STORAGE

Handling Procedures and Equipment	Avoid skin and eye contact. Avoid breathing vapours. Decomposition products can be highly toxic and irritating. Individual with lung or breathing problems or prior allergic reactions to
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	isocyanates must not be exposed to vapour or spray mist. Use adequate ventilation. Warning properties (irritation of the eyes, nose and throat or odour) are not adequate to prevent chronic overexposure from inhalation. Wash thoroughly after handling. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Employee education and training are important.
Storage requirements	Store in a cool and well-ventilated area. Storage temperature: (min/max: -36/50 C). Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

SECTION 08: EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limit	ACGIH TLV	Not available.
	OSHA PEL	Not available.
	Other	Not available.
Engineering Controls	General	General ventilation is recommended.
	Local Exhaust	Ventilate adequately. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Avoid breathing mists; if general ventilation or local exhaust is inadequate, persons exposed to mists should wear approved breathing devices.
	Monitoring	Exposure levels must be monitored by accepted monitoring techniques to ensure that the TLV is not exceeded.
Personal Protective Equipment	Gloves	Chemical resistance gloves. Butyl rubber. Nitrile rubber. Neoprene. Practice good hygiene; wash thoroughly before handling any food.
	Respirator	Avoid breathing vapours. When contamination levels exceed the recommended exposure limits. A positive pressure, supplied-air respirator or a self-contained breathing apparatus is recommended. An air-purifying respirator is not generally recommended based on the poor warning properties of the product. At least as air-purifying respirator equipped with an organic vapour cartridge and particulate pre-filters must be worn. However, this should be permitted only for short periods of time (<1 hour) at relatively low concentrations (at or near the TLV). Do not exceed the use limits of the respirator.
	Eye	Chemical safety goggles. Chemical safety goggles and full faceshield if a splash hazard exists. Contact lenses should not be worn when working with this chemical.
	Footwear	Not available.
	Clothing	Wear adequate protective cloths. Wear long sleeves and trousers to prevent dermal exposure.
	Other	Eyewash fountain. Emergency shower should be in close proximity. Educate and train employees on the safe use and handling of the product. Employees should wash their hands and face before eating, drinking, or using tobacco products.
Medical Surveillance		Medical supervision of all employees who handle or come in contact with isocyanates is recommended. These should include preemployment and periodic medical examinations with pulmonary function test (FEV, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure can be permitted.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid.
Odor and Appearance	Slight, clear.
Odor Threshold (ppm)	Not available.
Specific Gravity	1.16 @ 25 C.
Vapor Density (air = 1)	Not available.
Vapor Pressure (mmHg)	HDI: 5.2x 10-9 mmHg (20 C).

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Evaporation Rate	Not available.
Flammability Class	Not available.
Boiling Point °C	Not available.
Freezing Point °C	Not available.
Volatile % By Weight	Not available.
PH	Not available.
Coefficient of Water / Oil Distribution	Not available.
Solubility in Water	Reacts slowly with water to liberate CO2 gas. Insoluble.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	N/A
Incompatibility With Other Substances	Water, amines, strong bases, alcohols. Copper alloys.
Reactivity	Contact with moisture and other materials that react with isocyanates. Temperatures above 177 C may cause polymerization.
Hazardous Decomposition Products	Contact with moisture or other materials that react with isocyanates may cause polymerization. Or temperature over 177 C. Thermal decomposition may produce toxic fumes. At high temperatures: By fire: Carbon monoxide, carbon dioxide. Oxides of nitrogen. Dense black smoke. Hydrogen cyanide. Isocyanates. Other undermined compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

Effects on Acute Exposure	Not available.
Effects on Chronic Exposure	Not available.
Irritancy of Product	Slight.
Skin Sensitization	Isocyanate is known to cause skin and respiratory sensitization in humans. Repeated contact may cause allergic skin and/ or respiratory reactions resulting sensitization of the individual. Respiratory sensitivity results in asthma-like symptoms on subsequent exposure.
Respiratory sensitization	Read above
Carcinogenicity	This product in not listed by NTP, IARC or regulated as a carcinogen by OSHA.
Other Toxicity Information	Not available.
IARC (1,A2 or 2B)	N/A
ACGIH (A1, A2 or A3)	N/A
Reproductive Toxicity	Not available.
Teratogenicity	Not available.
Embryotoxicity	Not available.
Mutagenicity	Not available.
Name of Synergistic Products / Effects	Not available.

SECTION 12: ECOLOGICAL INFORMATION

Aquatic Toxicity	Not available.
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SECTION 13: DISPOSABLE CONSIDERATION

Waste Disposal	Dispose of waste in accordance with all applicable federal, provincial and local regulations. Incineration is the preferred method. Empty containers retain product residue; observe all precautions for product. Decontaminate containers prior to disposal. Do not heat or cut empty containers with electric or gas torch. Vapours and gases may be toxic.
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SECTION 14: TRANSPORT INFORMATION

Special Shipping Information	Not Regulated
PIN	N/A
TDG	Not Regulated
DOT	N/A
IMO	N/A
ICAO	N/A
ERAP	N/A

SECTION 15: REGULATORY INFORMATION

WHMIS Classification	Controlled. D2A. D2B. This product has been classified in accordance with subsection 23(1) of the Controlled Product Regulations (CPR) under the Workplace Hazardous Materials Information System (WHMIS).
OSHA	Not available
SEPA	On Domestic Substances List (DSL)
TSCA	Not available
DSL / TOSCA	Not available

SECTION 16: OTHER INFORMATION

Regulatory Information	This information is furnished without warranty, expressed or limited, except that it is accurate to the best knowledge. The data on this sheet relates only to the specific material designated herein. Concrete Chemical Technologies assumes no legal responsibilities for use or reliance upon these data.
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. It is provided solely for the customer's consideration, and verification. Hereby specifically claims. It shall not be held liable for any damage resulting from handling or from contact with the above products.