

KRETUS GROUP®



Safety Data Sheet

Section 1: Identification

Product Name: KRETUS® Urethane Polymer Concrete, Part B (WC/VC, RC/TT, or SL/MF and -AP, -EZ, or -FC)

Recommended Use: For residential and industrial use

Manufacturer: Kretus Group® 1426 W Collins Ave, Orange, CA 92867

Telephone : (714) 681-2286 (6am - 2pm)

24 Hour Emergency Telephone Number: (800) 255-3924 (CHEMTEL)

Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

Comments: To the best of our knowledge, this Safety Data Sheet conforms to the requirements of US OSHA 29 CFR1910.1200, 91/155/EEC and Canadian Hazardous Product Act.

Section 2: Hazard Identification

Emergency Overview: WARNING - CONTAINS DIPHENYLMETHANE DIISOCYANATE (CAS No. 101-68-8). INHALATION OF MDI MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT, AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPO TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING.

Classification of the product

Acute Tox.	4	(Inhalation - mist) Acute toxicity
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
Skin Corr./Irrit.	2	Skin corrosion/irritation
Skin Sens.	1B	Skin sensitization
Resp. Sens.	1	Respiratory sensitization
Carc.	2	Carcinogenicity

Label elements

Hazardous components which must be listed on the label

Contains: 4,4'-Diphenylmethane Diisocyanate

Signal Word: Warning!



Pictogram:

Hazard Statement:

- H320** Causes eye irritation.
- H315** Causes skin irritation.
- H332** Harmful if inhaled.
- H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317** May cause an allergic skin reaction.
- H335** May cause respiratory irritation.
- H351** Suspected of causing cancer.

H373 May cause damage to organs (Olfactory organs) through prolonged or repeated exposure (inhalation).

Precautionary Statements (Prevention):

P20 Wear protective gloves/protective clothing/eye protection/face protection.

P271 Use only outdoors or in a well-ventilated area.

P260 Do not breathe dust/gas/mist/vapors.

P201 Obtain special instructions before use.

P261 Avoid breathing mist.

P202 Do not handle until all safety precautions have been read and understood.

P24 In case of inadequate ventilation wear respiratory protection.

P272 Contaminated work clothing should not be allowed out of the workplace.

P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P305+P351+P333 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308+P311 IF exposed or concerned: Call a POISON CENTER or doctor/physician.

P314 Get medical advice/attention if you feel unwell.

P303+P352 IF ON SKIN (or hair): Wash with plenty of soap and water.

P333+P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.

P362+P364 Take off contaminated clothing and wash before reuse.

P332+P313 If skin irritation occurs: get medical advice/attention.

P337+P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Potential health effects:

Primary routes of exposure - Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute toxicity - Inhalation of MDI vapors may cause irritation of the mucous membranes of the nose, throat or breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Airborne overexposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

Irritation - Eye contact with isocyanates may result in conjunctival irritation and mild corneal opacity. Skin contact may result in dermatitis, either irritative or allergic.

Repeated dose toxicity - Information on MDI: Results from a lifetime inhalation study in rats indicate that MDI aerosol was carcinogenic at 6mg/m³, the highest dose tested. This is well above the recommended TLV of 5 ppb (0.05 mg/m³). Only irritation was noted at the lower concentration of 0.2 and 1 mg/m³. No birth defects or teratogenic effects were reported in a teratology study with rats exposed to 1, 4, and 12 mg/m³ polymeric MDI for 6 hr/day on days 6-15 of gestation. Embryotoxicity and fetotoxicity was reported at the top dose in the presence of maternal toxicity.

Medical conditions aggravated by overexposure - The isocyanates component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing.

Persons with history of respiratory disease or hypersensitivity should not be exposed to this product.

An animal study indicated that MDI may induce respiratory hypersensitivity following dermal exposure.

Medical supervision of all employees who handle or come into contact with isocyanates is recommended.

Preemployment and periodic medical examinations with respiratory function tests (FEV₁, FVC as a minimum) are suggested.

Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.

Contact may aggravate pulmonary disorders.

General Information: This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Prolonged contact may result in chemical burns and permanent damage. Repeated or prolonged contact causes sensitization, asthma and eczemas.

Read the entire SDS for a more thorough evaluation of the hazards.

Section 3: Composition/ Information on Ingredients

Ingredients	% By Weight	CAS Number
Polymeric Diphenylmethane Diisocyanate	35-50%	9016-87-9
4,4'-Diphenylmethane Diisocyanate	20-35%	101-68-8
MDI Mixed Isomers	20-35%	26447-40-5

Section 4: First-Aid Measures

General advice: Seek medical advice.

Eye Contact: Rinse immediately with plenty of water for at least 15 minutes.

Skin Contact: Immediately remove any extraneous chemical, if possible without delay. Take off contaminated clothing and shoes immediately. Wash body off with soap and plenty of water.

Inhalation: Move to fresh air. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.

Ingestion: Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position and turn victim's head to the side. **Do not induce vomiting.**

Note to physician:

Antidote: Specific antidotes or neutralizers to isocyanates do not exist.

Treatment: Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient.

Section 5: Fire-Fighting Measures

Suitable extinguishing media: Dry chemical, Carbon dioxide, Foam

Flammable Limits: Not Available

Explosion Limits: Not Available

Auto-ignition: 240°C (464°F)

Flash point: 200°C (392°F) [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]

Hazards during fire-fighting: Nitrous gases, carbon dioxide, carbon monoxide, isocyanates, vapor

Protective equipment for fire-fighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information: Do not allow run-off from firefighting to enter drains or water courses.

Section 6: Accidental Release Measures

Personal precautions: Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions: Do not discharge into drains/surface waters/groundwater.

Cleanup: Dike spillage.

For small amounts: Absorb isocyanates with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 8 % concentrated ammonia, 2 % detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide. For large amounts: If temporary control of isocyanates vapor is required, a blanket of protein foam or other suitable foam

(available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For residues: The following measures should be taken for final cleanup - wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

Section 7: Handling and Storage

Handling: Put on appropriate personal protective equipment, PPE (see Section 8). Eating and drinking should be prohibited in areas where this material is handled, stored and processed. Remove contaminated PPE or clothing, wash hands and face before eating and drinking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Use only in area provided with appropriate exhaust ventilation. Empty containers retain product residue and can be hazardous. Do not get in eyes, skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment.

Storage: Store between 4°C to 27°C (40 to 80°F) in accordance with local regulations away from sources of heat, ignition, and direct sunlight. Store in original container. Keep in a dry, well-ventilated area, and away from incompatible materials (see section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled, unapproved or reactive containers. Use appropriate containment to avoid environmental contamination.

Special Handling: If bulging of drum occurs, transfer to well-ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Section 8: Exposure Controls/ Personal Protection

Components with workplace control parameters:

Component	OSHA CLV	ACGIH TWA
Diphenylmethane-4,4'-diisocyanate (MDI)	0.02ppm; 0.2mg/m ³	0.005ppm

Advice on system design - Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment:

Respiratory protection - For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place.

Hand protection - Chemical resistant protective gloves, Suitable materials, chloroprene rubber (Neoprene), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, fluoroelastomer (Viton)

Eye protection - Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection - Suitable materials, saran-coated material

General safety and hygiene measures - Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

Section 9: Physical and Chemical Properties

Information on Physical and Chemical Properties

Form:	Liquid
Odor:	Faint odor, aromatic
Color:	Yellow
PH Value:	Not Applicable
Boiling Point:	200°C (5mmHg)

Vapor Pressure (25°C):	0.00001mmHg
Density:	10.20 lb/US gallon
Viscosity (25°C):	30 cps
Solubility in water:	Miscible, reacts with water
Evaporation Rate (Butyl Acetae = 1):	None
Volatile Organic Compounds:	None

Section 10: Stability and Reactivity

Chemical stability: Stable under normal conditions.

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalis. Reacts with amines. Risk of exothermic reaction. Risk of violent reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength

Conditions to avoid: Moisture. Excessive Heat.

Materials to avoid: Water, alcohols, amines, strong bases, substances/products that react with isocyanates.

Hazardous decomposition products: Carbon dioxide. Carbon monoxide. Hydrogen cyanide. Nitrogen oxides. Aromatic isocyanates. Gases/vapors

Hazardous polymerization: Under normal conditions hazardous polymerization will not occur.

Section 11: Toxicological Information

Diphenylmethane-4,4'-diisocyanate (MDI) CAS 101-68-8:

Acute Oral Toxicity LD50 - > 2,000 mg/kg (rat)

Acute Dermal Toxicity LD50 - > 10,000 mg/kg (rabbit)

Acute Inhalation Toxicity LC50 - 490 mg/m³, vapor, 4h (rat)

Chronic Effects: A study was conducted where groups of rats were exposed for 6 hrs/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 lung (adenoma). One malignant pulmonary tumor (Aden carcinoma) 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.

Carcinogenicity: The ingredients of this product are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA, and not listed as carcinogens by NTP. However, a carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.

Mutagenicity: There is no substantial evidence of mutagenic potential. Reproductive Effects: No adverse reproductive effects are anticipated.

Teratogenicity and Fetotoxicity: No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations well in excess of the defined occupational limits.

Section 12: Ecological Information

Environmental Fate and Distribution: It is unlikely that significant environmental exposure in the air or water will arise, based on consideration of the production and use of the substance.

Toxicity: Diphenylmethane-4,4'-diisocyanate (MDI) CAS 101-68-8

LC50 (Zebra Fish) - > 1000 mg/l, 96 hrs
 EC50 (Daphnia magna) - > 1000 mg/l, 24 hrs
 EC50 (E. Coli) - > 100 mg/l

Section 13: Disposal Considerations

Waste Disposal: Dispose in accordance with federal, state and local regulations.

The generation of waste should be avoided or minimized wherever possible. Empty containers should be taken to an approved waste handling site for recycling or disposal. Incineration or landfill should only be considered when recycling is not feasible. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Refer to 40 CFR § 261.7 (residues of hazardous waste in empty containers).

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14: Transport Information

Regulatory information	UN Numb	Classes	Packing Group	Proper Shipping Name
DOT				Not Regulated – Not Dangerous Goods
IATA				Not Regulated – Not Dangerous Goods
IMDG				Not Regulated – Not Dangerous Goods
TDG				Not Regulated – Not Dangerous Goods

Section 15: Regulatory Information

Country	Regulatory List	Notification
USA	TSCA	Included on Inventory
EU	EINECS	Included on Inventory
Canada	DSL	Included on Inventory
China	SEPA	Included on Inventory
Japan	ENCS	Included on Inventory

OSHA: This product is considered to be a hazardous chemical under 29 CFR 1910.1200.

CERCLA RQ – 5,000 lb

CERCLA SARA Hazard Category:

Section 311 AND 312 - This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

CHRONIC HEALTH HAZARD

Section 313 - - This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CAS Number	Chemical Name
101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)

U.S. State Regulations:

California Safe Drinking Water & Toxic Enforcement Act (Proposition 65) - This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other reproductive harm.

Right-to-Know -

CAS Number	Chemical Name	State RTK
101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)	MA, NJ, PA

This product has been classified in accordance with the hazard criteria of the Controlled Products

Regulations and the SDS contain all the information required by the Controlled Products Regulations.

Section 16: Other Information

Last Revision Date: 07-26-16

Preparation Date: 07-26-16

Hazardous Material Rating:

<i>Scale 0-4</i>		<i>NFPA</i>	<i>HMIS</i>
4=Severe Hazard	Health	2	2*
3=Serious Hazard	Flammability	1	1
2=Moderate Hazard	Reactivity	0	0
1=Slight Hazard			
0=Minimal Hazard			

*= Chronic Health Hazard

Disclaimer/ Statement of Liability:

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Kretus Group. The information in this SDS relates only to the specific material designated herein. Kretus Group assumes no legal responsibility for use of or reliance upon the information in this SDS.