KRETUS®

Safety Data Sheet

SECTION 1: IDENTIFICATION

Product Name: KRETUS® Polyurethane HP, Part A (Satin, Gloss)

Recommended Use: For professional use only.

Manufacturer: Kretus, 1055 W. Struck Ave., Orange, CA 92867

Telephone: (714) 694-2061

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.

SECTION 2: HAZARD IDENTIFICATION

Emergency Overview: Caution-Contains Hexamethylene Diisocyanate (HDI) (CAS no. 822-06-0). Inhalation of HDI 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 exposure to isocyanates has been reported to cause lung damage, including reduced lung function which may be permanent. Acute or chronic overexposure to isocyantes may cause sensitization in some individuals, resulting in allergic respiratory reactions including wheezing, shortness of breath, and difficulty breathing.

May cause sensitization by skin contact.
May cause respiratory tract irritation.
Eye wash fountains and safety showers must be easily accessible.
Hand in accordance with good industrial hygiene and safety practice. Wear protective clothing.

GHS Classification

Acute toxicity (Inhalation-mist)	**Category 4**
Respiratory sensitization	**Category 1**
Skin sensitization	**Category 1**
Specific target organ toxicity- single exposure (irritating to respiratory system)	**Category 3**

DANGER

H317: May cause an allergic skin reaction
H318: Causes serious eye damage
H412: Harmful to aquatic life with long lasting effects.

Precautionary statements

P280: Wear protective gloves
P271: Use only outdoors or in a well-ventilated area
P260: Do not breath mist or vapor
P261: Avoid breathing mist
P284: In case of inadequate ventilation, wear respiratory protection
P272: Contaminated work clothing should not be allowed out of the workplace.

Precautionary statements (response)
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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

Storage: Keep container tightly closed and locked in a cool, well-ventilated place.

Disposal: Dispose of contents/container to an approved waste disposal plant in accordance with applicable laws and regulations, and product characteristics at time of disposal.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Chemical Name	CAS No.	Concentration (% by Weight)
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	90-100%
Hexamethylene Diisocyanate	<0.5%	822-06-0

SECTION 4: FIRST-AID MEASURES

General advice: Seek medical advice or medical attention if condition persists.
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.
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.
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.

Notes to Physician: No specific treatment. Treat symptomatically. Call the poison control center immediately if large quantities have been ingested.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Carbon dioxide Foam. Dry Chemical

Specific hazards: Closed container may forcibly rupture under extreme heat or when content are contaminated with water forming carbon dioxide (CO2). Use cold water to cool fire-exposed containers to minimize the risk of rupture. During a fire, isocyanate vapors and other irritating, highly toxic gases may generate by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.
Special protective equipment for fire-fighters: Avoid contact with the skin. A face shield should be worn. Use personal protective equipment. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode

Danger of explosion: This product does not present an explosion hazard
Flammable Limits: not available
Explosive Limits: not available
Auto-Ignition: 805°F (403°C)
Flash point: Open Cup: 437°F (225°C), Closed cup: 338°F (170°C)

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform authorities if the product has caused environmental pollution (sewers, drains, waterways or soil).

Methods for Cleaning up: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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 to 30°C (40 to 86°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.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters:

Component	CAS	General Exposure Limits	General Exposure Limits
Aliphatic Polyisocyanate	28182-81-2	TWA 0.5 mg/m3	STEL 1.0 mg/m3 (15-min)
Hexamethylene Diisocyanate (<0.5%)	822-06-0	ACGIH TWA 0.005 ppm	CLV 0.02 ppm

OSHA PEL (TWA): not determined
NIOSH REL (TWA): not determined

Engineering measures: Work in well ventilated area. Provide natural or explosion-proof fan to ensure adequate ventilation, especially in confined area. Avoid contact with skin, eyes, and clothing.

Environmental exposure controls: Construct a dike to prevent spreading. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating and drinking, smoking or using the lavatory and at the end of the working period. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection:

Respiratory - In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eyes – Splash proof safety glasses.

Skin - Rubber or plastic apron. Rubber or plastic gloves. Long sleeved clothing or wear protective sleeves. Remove and wash contaminated clothing before re-use.

Other protective equipment information: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Neoprene gloves. PVC disposable gloves. Nitrile rubber. Butyl-rubber. Impervious gloves. (The breakthrough time of the selected glove(s) must be greater than the intended use period.)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid
Odor	Mild
Odor Threshold	No data available
pH	Not Applicable
Melting/Freezing Point	No data available
Initial Boiling Point and Boiling Range	>150°C
Flash Point	170°C Closed Cup
Evaporation Rate	No data available
Flammability	No data available
Upper/Lower Flammability or Explosive Limits	No data available
Auto-ignition Temperature	No data available
Vapor Pressure	4.7x10-7 mmHg @ 70°F
Vapor Density	Not Applicable
Relative Density/Specific Gravity	>1.0 g/cm3 @ 70°F
Solubility(ies)	Reacts with water
Partition Coefficient: n-octanol/water	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available

Viscosity	No data available
VOC (Volatile Organic Compounds)	<100 g/L

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions

Conditions to be avoided: Moisture. Excessive heat

Substances to be avoided: Water, alcohols, amins, acids, strong bases, substances/products that react with isocyanates

Hazardous decomposition products: Carbon dioxide, carbon monoxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gasses/vapors.

Further information: Under normal conditions hazardous polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50/rat >5000 mg/kg

Sensitization: guinea pig: sensitizing

Inhalation sensitization: Guinea pig: No

Human: long term studies show over-exposure may cause irritation of eyes, nose, throat and asthma.

SECTION 12: ECOLOGICAL INFORMATION

No environmental hazard is anticipated provided that the material is handled and disposed of with due care and attention.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste should be disposed of according to local, state, and federal regulations. Chemical residues are generally classified as special waste, and as such are covered by regulations which vary according to location. Contact your local waste disposal authority for advice or pass to a chemical disposal company. Dispose of containers with care.

SECTION 14: TRANSPORT INFORMATION

	UN Number	UN Proper Shipping Name	Transport Hazard Class(es)	Packing Group	Environmental Hazards
DOT	Not Regulated	Not Regulated	Not Regulated	Not Regulated	Not Regulated
IMO/IMDG	Not Regulated	Not Regulated	Not Regulated	Not Regulated	Not Regulated
IATA/CAO	Not Regulated	Not Regulated	Not Regulated	Not Regulated	Not Regulated

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code.

SECTION 15: REGULATORY INFORMATION

Country	Regulatory List	Notification
USA	TSCA	Included on inventory
EU	EINECS	Listed under polymer exempt

Canada	DSL	Included on inventory
China	SEPA	Included on inventory
Japan	ENCS	Included on inventory

OSHA – This product is considered a hazardous chemical under 29 CFR 1910.1200.
RCRA – Not a hazardous waste.
Clean Air Act Section 112 - Hexamethylene Diisocyanate 822-06-0
SARA 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: ACUTE, CHRONIC
SARA 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: None

SECTION 16: OTHER INFORMATION

Hazardous material Information System (HMIS):

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

Personal Protection: Safety goggles, neoprene rubber gloves, vapor respirator

Prepared by Kretus, Inc.

Disclaimer
The information and recommendations presented herein are accurate to the best of our knowledge. User must conduct their own tests to determine the suitability of these products for their particular purposes and usage. Because of numerous factors affecting results, KRETUS® and its affiliation makes no warranty of any kind, express or implied, including those of merchantability and fitness for purpose, other than material conforms to our applicable current specifications. KRETUS® assumes no legal responsibility for use or reliance on the information contained in this safety data sheet.