

MATERIAL SAFETY DATA SHEET

Date Prepared: 011/09/2007

Date Modified: 00/00/0000

Date Printed: 8/19/2010

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

MATERIAL IDENTITY:

BIO/CR A
White Hardener

INFORMATION TELEPHONE:

410-810-2100

COMPANY:

Seamless Technologies, Inc.
PO Box 428
Chestertown, MD 21620

EMERGENCY TELEPHONE:

CHEMTREC: 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)	Exposure Limits		
			PEL	STEL	TWA
Hexane,1,6-diisocyanate, Homopolymer	- 28182-81-2	100 %	NE	NE	NE
Hexamethylene Diisocyanate (HDI)	822-06-0	< 0.5	NE	NE	ACGIH 0.005 ppm
Titanium Dioxide	13463-67-7	1 – 50%	15 mg/m ⁽³⁾	NE	NE

3. HAZARDS IDENTIFICATION

ACUTE EYE

Irritant. Can cause pain, tearing, reddening, and swelling accompanied by a stinging sensation.

CHRONIC EYE

May result in corneal opacity (clouding of the eye surface).

ACUTE SKIN

Irritant. May be harmful if absorbed through the skin. Symptoms of irritation may be reddening swelling, rash, scaling or blistering. May cause sensitization and allergic reaction.

CHRONIC SKIN

Prolonged contact can cause reddening, swelling, rash, scaling or blistering. May cause sensitization and allergic reaction.

ACUTE INGESTION

May be harmful if swallowed. Can cause irritation and possible corrosive action to the mouth, stomach tissue and digestive tract.

CHRONIC INGESTION

None found.

ACUTE INHALATION

May be harmful if inhaled. May cause shortness of breath, headache, nausea, vomiting, respiratory tract irritation.

CHRONIC INHALATION

Repeated exposure can cause isocyanate sensitization. Symptoms include chest tightness, wheezing, cough, shortness of breath or asthmatic attack that could be immediate or delayed up to several hours after exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Asthma and other respiratory disorders (bronchitis, emphysema, and hyperactivity) skin allergies and eczema.

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4. FIRST AID MEASURES

EYES

Immediately flush eyes gently with large amounts of water for at least 20-30 minutes. Retract eyelids often. Get prompt medical attention.

SKIN

Thoroughly wash the exposed area with mild soap and water. Remove contaminated clothing and launder contaminated clothing before re-use. Seek medical attention if exposure symptoms develop.

INGESTION

If victim is conscious and alert, give 2 - 3 glasses of water to drink and induce vomiting by touching the back of the throat with a finger. Do not induce vomiting or give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended. Vomiting may occur spontaneously. To prevent aspiration of swallowed product, lay victim on side with head lower the waist if vomiting occurs and the victim is conscious, give water to further dilute the chemical.

INHALATION

If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention.

ADVISE TO PHYSICIANS

All treatment should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility the overexposure to materials other than this product may have occurred.

5. FIRE FIGHTING MEASURES

FLASH POINT METHOD= (Estimated)

160 C/320 F Will Burn

FLAMMABLE LIMITS (% VOLUME IN AIR) AUTOIGNITION TEMP. METHOD= N/AP

LOWER: N/AP UPPER: N/AP

FIRE AND EXPLOSIVE HAZARDS

Product will burn under fire conditions. Under fire conditions, toxic, corrosive fumes are emitted including nitrogen and carbon oxides. Use water to cool tightly closed containers exposed to fire. Self contained breathing apparatus and full protective clothing is required when smoke or fumes are generated.

EXTINGUISHING MEDIA

Dry Chemical, CO2, Foam, **WATER IS NOT** recommended.

FIRE FIGHTING INSTRUCTIONS

Do not enter fire area without proper protection. Wear self contained breathing apparatus (pressure-demand MSHA/NIOSH) approved or equivalent. See Section 10 - decomposition products possible. Fight fire from safe distance/protected location. Use water spray/fog for cooling tightly sealed containers. Notify authorities if liquid enters sewer/public waters.

6. ACCIDENTAL RELEASE MEASURES

Ventilate the area and wear protective equipment during clean up. Cover spills and soak up small spill with inert solids (such as vermiculite, clay) and sweep/shovel into disposal container.

Pump free liquid into an appropriate closed container. Clean up spill area with a decontamination solution made up of 50% isopropanol, 45% water and 5% concentration ammonia solution (% by Weight). The solution should cover the area for at least one hour. Absorb with an inert absorbent. Collect washing for disposal. Dispose/report per regulatory requirements. Evacuate and keep unnecessary people out of the spill area.

Do not flush into drains. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

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7. HANDLING AND STORAGE

This material is stable under normal handling and storage conditions. Maximum storage temperature is < 40 C (104 F). Store in a dry, well ventilated area.

Do not get in eyes. Avoid direct contact with skin. Store, transfer and handle under a blanket of nitrogen. Before closing partially empty containers, blanket with dry nitrogen. Replace damaged gaskets.

Store in tightly closed containers. Store in original container. Recommended container material: aluminum, epoxy coated steel, stainless steel, plastic. Container material to avoid, copper, tin.

DECONTAMINATION PROCEDURES

Follow standard plant procedures or supervisor's instructions for decontamination operations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

REQUIRED WORK/HYGIENE PROCEDURES

Precautions must be taken so that persons handling this product do not allow contact with eyes or skin. In spray operations protection must be afforded against exposure to both vapor and spray mists.

EYE PROTECTION

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor. Contact lenses should not be worn.

SKIN PROTECTION

When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. Gloves should be impervious neoprene or rubber. Clean equipment thoroughly after each use.

RESPIRATORY PROTECTIONS

Where respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations. Full-face air purifying respirators are required in work environments where isocyanate airborne concentrations exceed the action level but are significantly lower than the IDLH provided that the cartridges are changed daily. Use combination HEPA Filter for the polyisocyanate aerosol and an organic vapor cartridge for the solvents used.

Full face supplied air respirators (SAR) are required in work environments where isocyanate airborne concentrations have not been characterized or are expected to exhibit considerable and sudden variations such as in spray type application. Curing ovens must be ventilated to prevent emissions to the workplace.

ENGINEERING CONTROLS

Local exhaust ventilation may be required in addition to general room ventilation. Good industrial hygiene practice dictates that worker protection be achieved through ventilation whenever feasible.

OTHER HYGIENIC PRACTICES

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES

Use good personal hygiene practices. Do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is being used. Wash hands before eating, drinking, smoking or using toilet facilities. Wash exposed skin promptly to remove accidental splashes or contact with these materials. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	150 C (302 F) at 1 mm Hg
Vapor Pressure	N/P
Vapor Density (air=1)	N/P
Specific Gravity (water=1 @39.2F)	1.13 at 25 C (77 F)
Percent Volatiles	N/P
Evaporation Rate (Bac=1)	N/P
Odor	Odorless
pH	N/P
Color	Pale yellow
State	Viscous liquid

10. STABILITY AND REACTIVITY

CONDITIONS AND MATERIALS TO AVOID

This material is Stable under normal storage conditions described in Section 7. Hazardous Polymerization will not occur. Reacts violently with common materials including water, alcohols, bases and amines. Eye irritant. Toxic if inhaled. Possible Sensitizer.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may produce nitrogen oxides and carbon oxides

11. SUPPLEMENT

NPCA HMIS RATING	
Health	2
Flammability	1
Reactivity	1
Personal Protection**	D

**Respiratory protection may be necessary depending on conditions of use.

12. TOXICOLOGY INFORMATION

ACUTE EYE IRRITATION

Toxicological Information and interpretation:

eye – eye irritation, rabbit, Mildly irritating.

ACUTE SKIN IRRITATION

Toxicological Information and interpretation:

Skin– skin irritation, rabbit, Slightly irritating.

Skin – sensitization, guinea pig. Sensitizing. Data for 1,6-hexamethylene diisocyanate

ACUTE DERMAL TOXICITY

Toxicological Information and interpretation:

LD 50 – lethal concentration 50% of test species, > 2000 mg/kg , rabbit. Data for trimer of hexamethylene diisocyanate

ACUTE RESPIRATORY TOXICITY

Toxicological Information and interpretation:

LC 50 – lethal concentration 50% of test species, 2.18 mg/l/4 hr, rat. Data for trimer of hexamethylene diisocyanate

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ACUTE ORAL TOXICITY

Toxicological Information and interpretation:

LD 50 – lethal concentration 50% of test species, > 5000 mg/kg, rat. Data for trimer of hexamethylene diisocyanate

CHRONIC TOXICITY

This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable of suspected human carcinogens.

No additional test data found for this product.

13. REGULATORY INFORMATION

SARA TITLE 3: Section 311/312 Hazard Class (40CFR370)

Hexamethylene diisocyanate	CERCLA/SARA RQ 100 lbs
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CERCLA Information (40CFR302.4)

This material contains Hexamethylene diisocyanate and releases in excess of CERCLA thresholds are reportable.

TSCA status: All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

California Proposition 65 Information: This product does not contain, or may contain substance(s) known to the state of California to cause cancer and/or reproductive toxicity. This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable of suspected human carcinogens.

TRANSPORTATION INFORMATION

US DOT Hazard Class	Non-Regulated
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WORKPLACE CLASSIFICATION

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200)

WASTE CLASSIFICATION

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristics definition of ignitability, corrosiveness, or reactivity and is not listed in 40CFR261.33. The toxicity characteristic (TC), has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP). Consult state and local regulations regarding the proper disposal of this material.

Any containers used should be decontaminated immediately after use. Decontamination solution made up of 50% isopropanol, 45% water and 5% concentration ammonia solution (% by Weight). The solution should be applied for at least one hour. Clean up or disposal containers should be crushed or punctured.

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14. OTHER INFORMATION

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

*Note – qualifiers and codes used in this MSDS

EQ=Equal; AP= Approximately; LT= Less Than; GT = Greater Than; TR =Trace; UK = Unknown; N/AP = Not Applicable; N/P = No Applicable Information Found; N/DA = No Data Available NE = Np exposure limits found