

MATERIAL SAFETY DATA SHEET

DAUBERT CHEMICAL COMPANY

4700 SOUTH CENTRAL AVENUE
CHICAGO, ILLINOIS 60638
TELEPHONE: (708) 496-7350
FAX: (708) 496-7367

EMERGENCY CONTACT:
CHEMTREC (800) 424-9300

HMIS HAZARD RATING

HEALTH	2
FIRE	1
REACTIVITY	1
PERSONAL PROTECTION	X

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SECTION I: PRODUCT IDENTIFICATION

Product Name: **DAUBOND U8116 Series**
Chemical Family: Aromatic Polyisocyanate
Usage: Reactive Hot Melt Adhesive

SECTION II: HAZARDOUS INGREDIENTS

Component	Wt %	Recommended Exposure Limits (TWA)
4,4'-Diphenylmethane Diisocyanate CAS# 101-68-8	<2	OSHA PEL: 0.02 ppm 0.20 mg/m ³ Ceiling ACGIH TLV: 0.005 ppm – 0.051 mg/m ³ TWA
Crystalline Silica ¹⁾ CAS# 14808-60-7	<.5	OSHA PEL: 10 mg/m ³ (respirable) ACGIH TLV: .05 mg/m ³ (respirable)

¹⁾ The crystalline silica is bound in a polymer matrix and cannot be inhaled under normal conditions of use. Crystalline silica poses a hazard only if a dust is formed.

SECTION III: PHYSICAL DATA

Appearance: Solid
Color: White or Teal
Odor: Slight
Boiling Point: Not Established
Vapor Pressure: Not Established
Vapor Density: Not Established
Specific Gravity: 1.30 ± .02
Solubility in water: Not soluble; reacts slowly with water to liberate CO₂ gas
% Volatile by volume: Negligible

SECTION IV: FIRE AND EXPLOSION DATA

Flash Point: >392 °F (200 °C)
Extinguishing Media: Dry chemical (e.g. monoammonium phosphate, potassium sulfate, and potassium chloride), carbon dioxide, high expansion (proteinic) chemical foam, water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES:

Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by fire fighters. During a fire, vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Section VIII). At temperatures greater than 400 °F (204 °C), this product can polymerize and decompose which can cause pressure buildup in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

SECTION V: HUMAN HEALTH DATA

PRIMARY ROUTES OF ENTRY: Skin and eye contact from liquid and spray application. Although this product is low in volatility, an inhalation hazard can exist from the vapors formed during processing or spraying.

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Skin Contact: Acute Exposure: Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove. Chronic Exposure: Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

Eye Contact: Acute Exposure: Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. (See Section VI for treatment). Chronic Exposure: None found.

Inhalation: Acute Exposure: MDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Individuals with pre-existing, non-specific bronchial hyper-reactivity can respond to concentrations below the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure. Chronic Exposure: As a result of previous repeated overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) which will cause them to react to a later isocyanate exposure at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed (up to several hours after exposure). Similar to many non-specific asthmatic responses, there are reports that once sensitized, an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increase lung sensitivity can persist for weeks and in severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

Ingestion: Acute Exposure: Not a likely route of entry. Chronic Exposure: **None found.**

Carcinogenicity: This product contains greater than 0.1% crystalline silica which is listed as a Group 1 carcinogen by IARC, a known carcinogen by NTP, OSHA and as A2 suspected human carcinogen by ACGIH. The crystalline silica is bound in a polymer matrix and cannot be inhaled under normal conditions of use. Crystalline silica poses a hazard only if a dust is formed.

SECTION VI: EMERGENCY AND FIRST AID PROCEDURES

Skin Contact: For solid product, wash skin with water. For hot liquid product, immerse affected areas with cold water to dissipate heat. Do not attempt to remove material or contaminated clothing. Cover with gauze and seek immediate medical attention. Wash contaminated clothing before reuse. Clean shoes before reuse.

Eye Contact: Flush with copious amounts of lukewarm water for at least 15 minutes, holding eyelids open at all times. Refer individual to physician or ophthalmologist for immediate follow-up.

Inhalation: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician should this occur.

Ingestion: Not a likely route of exposure.

NOTE TO PHYSICIAN:

Skin: This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn.

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors may produce reversible corneal epithelial edema impairing vision.

Respiratory: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

SECTION VII: EMPLOYEE PROTECTION RECOMMENDATIONS

Skin Protection: Chemical resistant gloves (butyl rubber, nitrile rubber). Cover as much of the exposed area as possible with appropriate clothing. If skin creams are used, keep the area covered only by the cream to a minimum.

Eye Protection: Liquid chemical goggles or full-face shield. Contact lenses should not be worn.

Respiratory Protection: An air-supplied respirator must be worn during spray applications, during long-term (over 1 hour) exposures when the product is heated or in environments of high concentrations near the TLV, an air-purifying respirator equipped with organic cartridges or canisters and dust filters can be used. However, due to the poor warning properties of this product, proper fit and timely replacement of filter elements must be ensured. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Ventilation: Local exhaust should be used to maintain levels below the TLV whenever this product is processed, heated or spray applied. For spray applications, an air-supplied respirator must be worn.

Additional Protective Measures: Safety showers and eyewash stations should be available. Educate and train employees in safe use of this product. Follow all label instructions.

SECTION VIII: REACTIVITY DATA

Stability: Stable under normal conditions.

Polymerization: May occur if in contact with moisture or other materials which react with isocyanates. May occur at temperatures over 400 °F (204 °C). See Section IV.

Incompatibility (Materials to avoid): Water, amines, strong bases, alcohols.

Hazardous Decomposition Products: By high heat and fire: Carbon monoxide, Oxides of nitrogen, traces of HCN, MDI vapors and aerosols.

SECTION IX: SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Cover the spill with sawdust, vermiculite, Fuller's earth or other absorbent material. Pour decontamination solution over spill area and allow to react for at least 10 minutes. Collect material in open containers and add further amounts of decontamination solution. Remove containers to a safe place, cover loosely, and allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions. Decontamination solutions: non-ionic surfactant Union Carbide's Tergitol TMN-10 (20%) and water (80%); concentrated ammonia (3-8%), detergent (2%) and water (90-95%). Respiratory protection is recommended during spill clean-up. (See Respiratory Protection, Section VII).

Waste Disposal Method: Waste and container disposal must be in accordance with federal, state, and local environmental control regulations. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. DO NOT HEAT OR CUT EMPTY CONTAINERS WITH ELECTRIC OR GAS TORCH.

SECTION X: STORAGE & HANDLING INFORMATION

Storage Temperature: Minimum 40 °F (5 °C)
Maximum 122 °F (50 °C)

Average Shelf Life: 6 months in tightly closed containers packed under Nitrogen.

Special Sensitivity (Heat, Light, Moisture): If container is exposed to high heat, 400 °F (204 °C), it can be pressurized and possibly rupture. This product reacts slowly with water to form CO₂ gas. This gas can cause sealed containers to expand and possibly rupture.

Precautions to be taken in handling & storing: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

SECTION XI: STATE REGULATORY INFORMATION

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, contact the appropriate agency in your state.

Component	CAS Number	Concentration	State Code
4,4' -Diphenylmethane Diisocyanate (MDI)	101-68-8	<2	PA1

PA1 – Pennsylvania Hazardous Substance List

EPA Hazard Category (40 CFR Part 370):

IMMEDIATE (ACUTE)
 DELAYED (CHRONIC)

SARA TITLE III:

This product contains the following TOXIC CHEMICALS subject to the Reporting Requirements of Sec. 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and of 40 CFR Part 372:

Chemical	CAS No.	Wt%
4,4' -Diphenylmethane Diisocyanate	101-68-8	<2.0

This product contains the following EXTREMELY HAZARDOUS SUBSTANCE(S) subject to Emergency Planning Requirements under Sec. 301-303 (40 CFR Parts 300 and 355) and Emergency Release Notification Requirements under Sec. 304:

Chemical	CAS No.	Wt%	RQ/TPQ Lbs
NONE			

This product contains the following (CERCLA LIST) HAZARDOUS SUBSTANCE(S) subject to Emergency Release Notification Requirements under Sec. 304 (40 CFR Part 302):

Chemical	CAS No.	Wt%	Final RQ Lbs
4,4' -Diphenylmethane Diisocyanate	101-68-8	<2.0	5,000

CALIFORNIA PROPOSITION 65:

This product may contain trace quantities of the following chemicals that are identified by the State of California under the Safe Drinking Water and Toxic Reinforcement Act of 1986 ("Proposition 65") as either a carcinogenic or reproductive hazard:

Chemical	CAS No.	Estimated Concentration %
Crystalline Silica	14808-60-7	.02-.41

Although the information contained herein is believed to be reliable, it is furnished without warranty of any kind. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, and storage.