

MSDS **Material Safety Data Sheet**

Advanced Polymer Technology



QUALIPUR 6800 PART B

MSDS Number: 5036

Revision Date: 2/19/09

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1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Advanced Polymer Technology
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Product Name: QUALIPUR 6800 PART B
Revision Date: 2/19/09
MSDS Number: 5036
Chemical Family: Aliphatic Polyisocyanate

This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
Transportation emergency phone number: Chemtel 800-255-3924

2 HAZARDS IDENTIFICATION

Route of Entry: Inhalation, eye and skin contact.

Target Organs: Respiratory System; Skin; Eyes;

Inhalation: ACUTE EXPOSURE: HDI 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 a pre-existing, non-specific 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, 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. CHRONIC EXPOSURE: As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which 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 increased lung sensitivity can persist for weeks and in severe cases for several years. Chronic 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.

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 or blistering. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small

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amounts of liquid material or as a result of exposure to vapor-only exposure.

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.
CHRONIC EXPOSURE: None found.

Ingestion: ACUTE EXPOSURE: Can result in irritation and possible corrosive action in the mouth, stomach tissue and digestive tract.
CHRONIC EXPOSURE: None found.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas #	Chemical Name	Perc.
28182812	Hexane, 1,6-diisocyanato-, homopolymer	99.3%
822060	Hexamethylene diisocyanate	<.5%

OSHA Regulatory Status:

This MSDS contains valuable information critical to the safe handling and proper use of this product. This MSDS should be retained and available for employees and other users of this product.

4 FIRST AID MEASURES

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.

Skin Contact: Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures get under safety shower after removing clothing, then get medical attention. For lesser exposure, seek medical attention if irritation develops or persists after the area is washed.

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.

Ingestion: DO NOT INDUCE VOMITING. Give 1 to 2 cups of milk or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Get prompt, qualified medical attention.

5 FIRE FIGHTING MEASURES

Flash Point: 356 DEG F (180 DEG C)
Flash Point Method: DIN 51758

Dry chemical (e.g. monoammonium phosphate, potassium sulfate, and potassium chloride), carbon dioxide, high expansion

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(proteinic) chemical foam, water spray for large fires. 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. At temperatures greater than 400 DEG F (204 DEG C), this product can be polymerized and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

6 ACCIDENTAL RELEASE MEASURES

Evacuate non-essential personnel. Remove all sources of ignition and ventilate the area. Put on personal protective equipment. 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: nonionic 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.

7 HANDLING AND STORAGE

Handling Precautions: Avoid breathing vapors or mist; Avoid contact with eyes, skin, or clothing; Do not expose containers to open flame, excessive heat, or direct sunlight.

Storage Requirements: Storage temperature: Minimum 40 DEG F (5 DEG C) / Maximum 150 DEG F (66 DEG C). Store in tightly closed containers to prevent moisture contamination. This product reacts slowly with water to form CO₂ gas. This gas can cause sealed containers to expand and possibly rupture. Do not reseal if contamination is suspected. Store in cool/dry area.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: An air-purifying respirator equipped with organic cartridges or a canister and dust filters must be worn during spray applications and during long-term (over 1 hour) exposures in environments of high concentration near the Threshold Limit Value (TLV). 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).

Protective Equipment: During long-term (over 1 hour) exposures when the product is spray applied, heated, or in environments of high concentrations above the Threshold Limit Value (TLV), an air-purifying respirator equipped with organic cartridges or a canister and dust filters is required. Due to the poor warning properties of this product, proper fit must be ensured. Observe OSHA regulations for respirator use (29 CFR 1910.134). Chemical resistant gloves (butyl rubber, nitrile rubber) should be worn. 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. Liquid chemical goggles or full-face shield should be worn. Contact lenses should not be worn.

Exposure Guidelines/Other: Exposure Limits for Hexamethylene-1,6-Diisocyanate
ACGIH (TWA): 0.005ppm

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear yellow Liquid	Boiling Point:	Not established
Physical State:	Liquid	Freezing/Melting Pt.:	Not established
Odor:	Negligible		

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pH:	N.A.	Solubility:	Reacts slowly with water to liberate CO ₂ gas
Vapor Pressure:	Polyisocyanate: Approx. 7.5 x 10-5 mmHg @ 68 DEG F (20 DEG C)	Spec Grav./Density:	1.14 @ 68 DEG F (20 DEG C)
Vapor Density:	Not established		
VOC:	0 g/L		
Bulk Density:	9.5 lbs/gal		

10 STABILITY AND REACTIVITY

Stability:	Product is stable under normal conditions.
Conditions to avoid:	Temperatures over 400 DEG F (204 DEG C).
Materials to avoid (incompatibility):	Water, amines, strong bases, alcohols, metal compounds and surface active materials.
Hazardous Decomposition products:	By high heat and fire: carbon monoxide, carbon dioxide, oxides of nitrogen, HCN, HDI.
Hazardous Polymerization:	May occur if in contact with moisture or other materials which react with isocyanates. May occur at temperatures over 400 DEG F (204 DEG C).

11 TOXICOLOGICAL INFORMATION

Toxicity Data for Homopolymer of Hexamethylene Diisocyanate

Acute Oral Toxicity

LD50: > 5,000 mg/kg (rat)

Acute Inhalation Toxicity

LC50: 390-453 mg/m³, aerosol, 4hrs (rat, male/female)

RD50: 20.8 mg/m³, 3hrs

Acute Dermal Toxicity

LD50: > 5,000 mg/kg (rabbit)

Skin Irritation

rabbit, Draize, Slightly irritating

Eye Irritation

rabbit, Draize, Slightly irritating

Sensitization

dermal: sensitizer (guinea pig, Maximisation Test (GPMT))

dermal: non sensitizer (Guinea pig, Buehler)

inhalation: non sensitizer (guinea pig)

Repeated Dose Toxicity

3 weeks, inhalation: NOAEL: 3.7-4.3 mg/m³ (rat)

90 days, inhalation: NOAEL: 3.3-3.4 mg/m³ (rat)

Irritation to lungs and nasal cavity

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Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

12 ECOLOGICAL INFORMATION

Ecological Data for Homopolymer of Hexamethylene Diisocyanate

Biodegradation

0%, Exposure time: 28 days, Not readily biodegradable.

Acute and Prolonged Toxicity to Fish

LC0: > 100mg/l (Zebra fish (Brachydanio rerio), 96hrs)

Actue Toxicity to Aquatic Invertebrates

EC0: > 100 mg/l (Water Flea (Daphnia magna), 48hrs)

Toxicity to Aquatic Plants

EC50: > 1,000 mg/l (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms

Ec50: > 1,000mg/l (Activated Sludge microorganisms, 3hrs)

13 DISPOSAL CONSIDERATIONS

Waste and container disposal must be in accordance with federal, state, and local environmental control regulations. Incineration is the preferred method. 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.** (See Sections IV and VIII).

14 TRANSPORT INFORMATION

DOT (HM-181; DOMESTIC SURFACE)

D.O.T. SHIPPING NAME: Other regulated Substances, Liquid, NOS
(contains Homopolymer of Hexamethylene Diisocyanate)
D.O.T. HAZARD CLASS: 9
UN/NA NUMBER: NA 3082
PACKAGING GROUP: PG III
D.O.T. LABEL: Class 9
D.O.T. PLACARD: Class 9
REPORTABLE QUANTITY (RQ): 20,000LBS
WHEN IN INDIVIDUAL CONAINTERS OF LESS THAN THE PRODUCT RQ, THIS MATERIAL SHIPS AS NON-REGULATED.

ICAO/IATA (AIR)

PROPER SHIPPING NAME: Aliphatic Polyisocyanate
HAZARD CLASS DIVISION NUMBER: NON-REGULATED
UN NUMBER: none
SUBSIDIARY RISK: none
PACKING GROUP: none
HAZARD LABEL(S): none
RADIOACTIVE?: Non-radioactive
PASSENGER AIR - MAXIMUM QUANTITY: none

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PACKING INSTRUCTION NUMBER: none
CARGO AIR - MAXIMUM QUANTITY: none
PACKING INSTRUCTION NUMBER: none

IMO/IMDG CODE (OCEAN)

PROPER SHIPPING NAME: Aliphatic Polyisocyanate
HAZARD CLASS DIVISION NUMBER: NON REGULATED
UN NUMBER: none
PACKING GROUP: none
HAZARD LABEL(S): none
HAZARD PLACARD(S): none

15 REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

*Hexamethylene diisocyanate (822060 <.5%) CERCLA, HAP, MASS, SARA313, TXAIR

TSCA: All components in this mixture are included on the TSCA inventory.

REGULATORY KEY DESCRIPTIONS

CERCLA = Superfund clean up substance
HAP = Hazardous Air Pollutants
MASS = MA Massachusetts Hazardous Substances List
SARA313 = SARA 313 Title III Toxic Chemicals
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

Disclaimer:
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

END OF MSDS DOCUMENT