

MATERIAL SAFETY DATA SHEET

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**SECTION 1 - MATERIAL IDENTIFICATION**  
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100578

PRODUCT NAME                   VERSATHANE<sup>®</sup> A-85 URETHANE PREPOLYMER  
  
                                  <sup>®</sup>VERSATHANE is a registered trademark of Air  
                                  Products and Chemicals, Inc.

MSDS REVISION NUMBER       10

MANUFACTURER                Air Products and Chemicals, Inc.  
                                  7201 Hamilton Blvd.,  
                                  Allentown, PA 18195-1501  
                                  www.airproducts.com/msds

TELEPHONE NUMBER           800-345-3148

EMERGENCY TELEPHONE NUMBER(S)  
                                  800-523-9374 (Continental U.S.)  
                                  610-481-7711 (Outside Continental U.S.)

REVISION DATE               NOVEMBER 2000

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EMERGENCY OVERVIEW  
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HMIS/NFPA HEALTH    2           FLAMMABILITY    1           REACTIVITY    1

PHYSICAL FORM            waxy solid  
                          at processing temperature    Liquid

COLOR                    White  
                          at processing temperature    Straw yellow / Amber

ODOR                     Pungent

HAZARDS                 Severe eye irritant. Severe respiratory tract  
                          irritant. Moderate skin irritant.

EXTINGUISHING MEDIA    Ignition will give rise to a Class B fire. In  
                          case of fire use: Water streams.

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C.A.S. CHEMICAL NAME       ETHYLENE ADIPATE POLYMER WITH 1,3-  
                                  DIISOCYANTOMETHYLBENZ

SYNONYMS                 None

CHEMICAL FAMILY         Polyurethane Resin

EMPIRICAL FORMULA        No Data



Respiratory system

**SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects)**

Contact with eyes causes severe irritation and pain. Contact with skin causes irritation, redness and discomfort which is transient. Inhalation of vapors may cause irritation in the respiratory tract.

**SIGNS AND SYMPTOMS OF EXPOSURE (Possible Longer Term Effects)**

Repeated and/or prolonged exposures may result in: adverse respiratory effects (such as cough, tightness of chest or shortness of breath), adverse eye effects (such as conjunctivitis or corneal damage), adverse skin effects (such as rash, irritation or corrosion).

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

Asthma  
Chronic respiratory disease (e.g. Bronchitis, Emphysema)  
Eye disease  
Skin disorders and Allergies

**CARCINOGENS UNDER OSHA, ACGIH, NTP, IARC, OTHER**

2,4-TOLUENEDIISOCYANATE ( IARC, NTP )

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**SECTION 4 - FIRST AID**

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**EYE CONTACT**

Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Seek medical advice.

**SKIN CONTACT**

Remove product and immediately flush affected area with water for at least 15 minutes. Remove contaminated clothing and shoes. Seek medical advice.

**INHALATION**

Move patient to fresh air. If breathing has stopped or is labored give assisted respiration (e.g. mouth-to-mouth). Supplemental oxygen may be indicated. Prevent aspiration of vomit. Turn victim's head to the side. Seek medical advice.

**INGESTION**

If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

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**SECTION 5 - FIRE AND EXPLOSION DATA**

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FLASH POINT (closed cup)

>160.00 C (>320.00 F)

UPPER EXPLOSION LIMIT (UEL) No Data  
LOWER EXPLOSION LIMIT (LEL) No Data

AUTOIGNITION TEMPERATURE No Data  
FIRE HAZARD CLASSIFICATION (OSHA/NFPA)  
Combustible Solid

#### EXTINGUISHING MEDIA

Ignition will give rise to a Class B fire. Do not add water or other liquids to this product. In case of fire use: Water streams.

#### SPECIAL FIRE FIGHTING PROCEDURES

Firefighters should wear butyl rubber boots, gloves, and body suit and a self-contained breathing apparatus.

Retain expended liquids from fire fighting for later disposal.

#### UNUSUAL FIRE AND EXPLOSION HAZARDS

May generate toxic or irritating combustion products.

Sudden reaction and fire may result if product is mixed with an oxidizing agent.

May generate carbon monoxide gas.

May generate hydrogen cyanide gas.

Personnel in vicinity and downwind should be evacuated.

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### SECTION 6 - ACCIDENTAL RELEASE MEASURES

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#### CONTAINMENT TECHNIQUES (Removal of ignition sources, diking etc)

Stop the leak, if possible. Shut off or remove all ignition sources.

#### CLEAN-UP PROCEDURES

Shovel spilled chemical product into empty, dry container for later disposal or recovery. Place in metal containers for recovery or disposal. Clean-up personnel must be equipped with self contained breathing apparatus and butyl rubber protective clothing. Prepare a decontamination solution of 0.2-5% liquid detergent and 3-8% concentrated ammonium hydroxide in water. Treat spill area with decontamination solution, using about 10 parts of the solution for each part of the spill and allow it to react for at least 10 minutes for trace amounts and 48 hours for large spills. Neutralize the waste. Carbon dioxide will evolve, leaving insoluble polyureas. Insulated gloves such as thermal lined rubber when handling hot material.

#### OTHER EMERGENCY ADVICE

Wear protective clothing, boots, gloves, and eye protection.

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### SECTION 7 - HANDLING AND STORAGE

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#### STORAGE

Keep away from: oxidizers, moisture. Keep in cool, dry, ventilated storage and in closed containers. Store under inert atmosphere. Store under a nitrogen atmosphere.

#### HANDLING

Avoid contact with skin or eyes. Avoid breathing of vapors. Handle in well ventilated work space. Handle under inert gas atmosphere in dry equipment. Maintain a nitrogen atmosphere in the head space of the drum. Do not use air pressure to remove contents. When handling, do not eat, drink, or smoke. To prepare for unloading, the drum with bung vent inserted should be placed in a warm room, drum warmer or meltdown oven for period of time sufficient to melt the desired amount of prepolymer. Liquid prepolymer can then be removed from the drum by inserting a drum spigot or ball valve in the 2 inch bung, positioning on a drum tilter, tilting and pouring out the required amount.

#### OTHER PRECAUTIONS

Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations (e.g. OSHA).

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### SECTION 8 - PERSONAL PROTECTION / EXPOSURE CONTROLS

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#### EYE PROTECTION

Splash-proof eye goggles. In emergency situations, use eye goggles with a full face shield. Full face shield with goggles underneath when molten material is being handled.

#### HAND PROTECTION

Impermeable gloves. Insulated gloves such as thermal lined rubber when handling hot material.

#### RESPIRATORY PROTECTION

Not required under normal conditions in a well-ventilated workplace. Under the following conditions a respirator may be required: when product vapor concentration exceeds the limits listed in section 2, during repair and cleaning of equipment, during transfer or discharge of the product, sampling, spray applications. Types of respirators that may be used include the following: Chemical Cartridge Respirator with face piece to protect against the organic vapor, Supplied air respirator with full face piece, Self-contained breathing apparatus in pressure demand mode. In emergency conditions use a self-contained breathing apparatus in pressure demand mode.

#### PROTECTIVE CLOTHING

Long sleeved clothing.

#### ENGINEERING CONTROLS

Maintain air concentrations in work spaces in accord with standards outlined in Sections 2 and 3.

**WORK AND HYGIENIC PRACTICES**

Provide readily accessible eye wash stations and safety showers.  
Wash at the end of each workshift and before eating, smoking or using the toilet.

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**SECTION 9 - TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

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|                                     |                            |
|-------------------------------------|----------------------------|
| PHYSICAL FORM                       | waxy solid                 |
| COLOR                               | White                      |
| ODOR                                | Pungent                    |
| pH                                  | No Data                    |
| VAPOR PRESSURE (mm Hg at 21C (70F)) | <0.50376                   |
| VAPOR DENSITY (Air = 1)             | No Data                    |
| BOILING POINT                       | >250.00 C (>482.00 F)      |
| MELTING POINT                       | >40.00 C (>104.00F)        |
| SOLUBILITY IN WATER                 | Reacts slightly with water |
| SPECIFIC GRAVITY (Water = 1)        | 1.17                       |
| MOLECULAR WEIGHT                    | No Data                    |

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**SECTION 10 - STABILITY AND REACTIVITY**

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**CHEMICAL STABILITY**

Stable.

**CONDITIONS TO AVOID (if unstable)**

Not applicable

**INCOMPATIBILITY (Materials to Avoid)**

Oxidizing Agents (i.e. perchlorates, nitrates etc.). Sodium or Calcium Hypochlorite. Alcohols. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Product reacts slowly with water which results in the liberation of carbon dioxide. Reaction with water or contaminants or excessive heat may result in sufficient pressure to burst container.

**HAZARDOUS DECOMPOSITION PRODUCTS (from burning, heating, or reaction with other materials).**

Carbon Monoxide in a fire. Carbon Dioxide in a fire. Irritating and toxic fumes at elevated temperatures. Phosgene. nitriles. cyanic acid. isocyanates. cyanogens. amides. carbamates. toxic cyanates.

**HAZARDOUS POLYMERIZATION**

Will not occur

**CONDITIONS TO AVOID (if polymerization may occur)**

Not applicable

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**SECTION 11 - TOXICOLOGICAL PROPERTIES**

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**ACUTE ORAL TOXICITY (LD50, RAT)**

>5000.00 mg/kg (No deaths) (Estimate)

**ACUTE DERMAL TOXICITY (LD50, RABBIT)**

>5000.00 mg/kg (No deaths)

**ACUTE INHALATION TOXICITY (LC50, RAT)**

No Data

**OTHER DATA**

Data available on components only.

**OTHER ACUTE EFFECTS**

No Data

**IRRITATION EFFECTS DATA**

Severe irritant to the eyes of a rabbit. Moderate irritant to the skin of a rabbit.

**CHRONIC/SUBCHRONIC DATA**

In recent National Toxicology Program toxicity studies, toluene diisocyanate (TDI), when given orally by stomach tube as a concentrated mixture in corn oil, produced tumors in male and female rats and female mice but not male mice. A lifetime inhalation study of TDI in male and female rats and mice produced no tumors. Based on the oral study cited above, NTP has included TDI in its 1986 carcinogen list. NTP has not considered the inhalation study as evidence that it is not a carcinogen. The International Agency for Research on Cancer (IARC) has concluded that "there is inadequate evidence for the carcinogenicity of toluene diisocyanate to humans, but sufficient evidence for its carcinogenicity to experimental animals."

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**SECTION 12 - ECOLOGICAL INFORMATION**

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No Data

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**SECTION 13 - DISPOSAL CONSIDERATIONS**

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**WASTE DISPOSAL**

Comply with all Federal, State and Local Regulations.

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**SECTION 14 - TRANSPORT INFORMATION**

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DOT NON-BULK SHIPPING NAME            RESIN COMPOUND - Not DOT Regulated

DOT BULK SHIPPING NAME                Refer to Bill of Lading.

IMO SHIPPING DATA                     Refer to Bill of Lading.

ICAQ/IATA SHIPPING DATA              RESIN COMPOUND - Not IATA Regulated

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**SECTION 15 - REGULATORY INFORMATION**  
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**US FEDERAL REGULATIONS**

**TOXIC SUBSTANCES CONTROL ACT (TSCA)-**

All components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

OSHA Hazard Communication Standard (29CFR1910.1200) hazard class(es)  
Irritant.

EPA SARA Title III Section 312 (40CFR370) hazard class  
Immediate Health Hazard.

EPA SARA Title III Section 313 (40CFR372) toxic chemicals above "de minimis" level are

2,4-TOLUENEDIISOCYANATE

2,6-TOLUENEDIISOCYANATE

**STATE REGULATIONS**

PROPOSITION 65 SUBSTANCES (component(s) known to the State of California to cause cancer and/or reproductive toxicity and subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986")

2,4-TOLUENEDIISOCYANATE

2,6-TOLUENEDIISOCYANATE

NEW JERSEY TRADE SECRET REGISTRY NUMBER(S)  
None

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**SECTION 16 - INTERNATIONAL REGULATIONS**  
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**CANADA**

DSL

Included on Inventory.

WHMIS HAZARD CLASSIFICATION

Class D Division 2B,

2,4-TOLUENEDIISOCYANATE

2,6-TOLUENEDIISOCYANATE

WHMIS SYMBOLS

Stylized T,



EUROPEAN ECONOMIC COMMUNITY (EEC)

EINECS/ELINCS MASTER INVENTORY

Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.

EEC SYMBOL

HARMFUL (Xn)

EEC RISK (R) PHRASES

May cause sensitization by inhalation (R42). Harmful by inhalation (R20).

EEC SAFETY PHRASES

Do not breathe vapors (S23V). Wear suitable protective clothing and gloves (S36/37). In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) (S45).

EEC SPECIAL PHRASES

Contains Isocyanates. See information supplied by the manufacturer.

AUSTRALIA

AICS

Included on Inventory.

JAPAN MITI

Included on Inventory.

PHILIPPINES PICCS

Not on Inventory.

KOREA ECL

Included on Inventory.

CHINA SEPA

Included on Inventory.

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PRODUCT CODE

CPA85

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