

Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501  
Telephone (610) 481-4911  
MATERIAL SAFETY DATA SHEET



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SECTION 1 - MATERIAL IDENTIFICATION  
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100601

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

PRODUCT CODE                   SMS85A

MSDS REVISION NUMBER        5

MANUFACTURER                 Air Products and Chemicals, Inc. 7201  
                                  Hamilton Blvd., Allentown, PA 18195-1501

TELEPHONE NUMBER             800-345-3148

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

DATE PREPARED                 JANUARY 1998

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EMERGENCY OVERVIEW  
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HMIS HEALTH RATING   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. May cause  
                          respiratory sensitization. May cause skin  
                          sensitization.

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       Mixture

SYNONYMS                   None

CHEMICAL FAMILY            Isocyanate Prepolymer

EMPIRICAL FORMULA         Mixture

INTENDED USE               Prepolymer

REVISION NOTES

Updated health hazard information. SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects)  
Updated Reactivity Information. Updated respiratory protection information.

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**SECTION 2 - INGREDIENTS**  
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#	%	CAS Number and Chemical Name
1.	9.00 - 14.00	101-68-8 BENZENE, 1,1'-METHYLENEBIS(4-ISOCYANTO-
2.	86.00 - 91.00	27083-55-2 HEXANEDIOIC ACID, POLYMER WITH 1,4-BUTANEDIOL, 1,2-ETHANEDIOL AND 1,1'-METHYLENEBIS[4-ISOCYANATOBENZENE]

OSHA (ACGIH) EXPOSURE LIMITS

	TWA		STEL		CEILING	
	ppm	mg/m3	ppm	mg/m3	ppm	mg/m3
1.	OSHA N/E	N/E	N/E	N/E	0.0200	0.2000
	ACGIH 0.0050	0.0510	N/E	N/E	N/E	N/E
2.	OSHA N/E	N/E	N/E	N/E	N/E	N/E
	ACGIH N/E	N/E	N/E	N/E	N/E	N/E

N/E = Not Established.

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**SECTION 3 - HEALTH HAZARDS**  
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ROUTES OF EXPOSURE

Eye Contact  
Skin Contact  
Ingestion

EXPOSURE STANDARDS

See Section 2 for exposure standards on ingredients. Maintain air contaminant concentrations in the workplace at the lowest feasible levels.

HEALTH HAZARDS

Severe eye irritant.  
Severe respiratory tract irritant.  
Moderate skin irritant.  
May cause respiratory sensitization.  
May cause skin sensitization.

TARGET ORGANS

Eye  
Skin  
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 mists may cause irritation in the respiratory tract. Inhalation of vapors may cause irritation in the respiratory tract. Coughing and chest pain may result.

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

This substance may cause respiratory sensitization and chronic lung toxicity to exposed workers.

Repeated and/or prolonged exposure may cause allergic reaction/sensitization.

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

This product contains no carcinogens in concentrations of 0.1 percent or greater.

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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). 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) >110.00 C (>230.00 F)

UPPER EXPLOSION LIMIT (UEL) No Data

LOWER EXPLOSION LIMIT (LEL) No Data

AUTOIGNITION TEMPERATURE No Data

FIRE HAZARD CLASSIFICATION (OSHA/NFPA)

Class III B

### 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.

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. Construct a dike to prevent spreading.

### CLEAN-UP PROCEDURES

If recovery is not feasible, admix with dry soil, sand or non-reactive absorbent (sodium bisulfate) and place in a container or dumpster pending disposal. Transfer to containers by suction, preparatory for later disposal. Place in metal containers for recovery or disposal. Clean-up personnel must be equipped with self contained breathing apparatus and butyl rubber protective clothing. For large spills, recover spilled material with a vacuum truck. 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. Avoid using in any spray application without strict conformance to all applicable electrical codes and the OSHA limit for maximum allowable airborne concentrations. 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. Nitrile rubber gloves. Polyvinyl alcohol 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))	<1.00
VAPOR DENSITY (Air = 1)	No Data
BOILING POINT	>149.00 C (>300.20 F)
MELTING POINT	No Data
SOLUBILITY IN WATER	Reacts with water
SPECIFIC GRAVITY (Water = 1)	1.20
MOLECULAR WEIGHT	Mixture

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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.

#### 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. 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) (Estimate)

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

No Data

**OTHER ACUTE EFFECTS**

No Data

**IRRITATION EFFECTS DATA**

Irritation data based on estimates.

**CHRONIC/SUBCHRONIC DATA**

No delayed, subchronic or chronic test data are known.

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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	Chemicals, N.O.I. - Not DOT Regulated
DOT BULK SHIPPING NAME	Refer to Air Products Bill of Lading.
IMO SHIPPING DATA	Chemicals, N.O.I. - Not IMO Regulated
ICAO/IATA SHIPPING DATA	Chemicals, N.O.I. - 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. Sensitizer.

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

EPA SARA Title III Section 313 (40CFR372) toxic chemicals above "de minimis" level are  
BENZENE, 1,1'-METHYLENEBIS(4-ISOCYANTO-

**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")  
None

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 2A, Class D Division 2B,

**WHMIS TRADE SECRET REGISTRY NUMBER(S)**

None

**WHMIS SYMBOLS**

Stylized T,

**EUROPEAN ECONOMIC COMMUNITY (EEC)**

**EINECS MASTER INVENTORY**

Not determined

**EEC SYMBOL**

HARMFUL (XN)

**EEC RISK (R) PHRASES**

May cause sensitization by inhalation (R42). Irritating to eyes, respiratory system and skin (R36/37/38).

**EEC SAFETY PHRASES**



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**AIR**  
**PRODUCTS** 

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice (S26). After contact with skin, wash immediately with plenty of soap and water (S28). In case of insufficient ventilation, wear suitable respiratory equipment (S38). In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) (S45).

**EC SPECIAL PHRASES**

Contains Isocyanates. See information supplied by the manufacturer.