AIR PRODUCTS

MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME	VERSATHANE* SMS-852 URETHANE PREPOLYMER *VERSATHANE is a registered trademark of Air Products and Chemicals, Inc.
MSDS REVISION NUMBER	3
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	AUGUST 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	Pale yellow
at processing temperature	Straw yellow / Amber
ODOR	Musty
HAZARDS	Moderate skin irritant. Mild eye 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

AIR PRODUCTS

INTENDED USE No Data

REVISION NOTES Updated health hazard information.

SECTION 2 - INGREDIENTS

Num	%	CAS Number and Chemical Name
1.	9.00 - 14.00	101-68-8 BENZENE, 1,1'-METHYLENEBIS(4-ISOCYANTO-
2.	86.00 - 91.0	25931-01-5 HEXANEDIOIC ACID, POLYMER WITH 1,2-ETHANEDIOL AND 1,1'-METHYLENEBIS[

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.

SECTION 3 - HEALTH HAZARDS

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

Moderate skin irritant.
Mild eye irritant.
May cause respiratory sensitization.
May cause skin sensitization.

TARGET ORGANS

Skin
Respiratory system

SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects)

Contact with eyes may cause mild irritation and discomfort.

Contact with skin causes irritation, redness and discomfort which is transient.

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 skin effects (such as rash, irritation or corrosion).

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

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

CARCINOGENS UNDER OSHA, ACGIH, NTP, IARC, OTHER

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

SECTION 4 - FIRST AID

EYE CONTACT

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

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.

SECTION 5 - FIRE AND EXPLOSION DATA

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)

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.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

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.

SECTION 7 - HANDLING AND STORAGE

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).

SECTION 8 - PERSONAL PROTECTION / EXPOSURE CONTROLS

EYE PROTECTION

Chemical safety glasses. 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.

SECTION 9 - TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	waxy solid
COLOR	Pale yellow
ODOR	Musty
pH	No Data
VAPOR PRESSURE (mm Hg at 21C (70F))	<0.09774
VAPOR DENSITY (Air = 1)	No Data
BOILING POINT	>208.00 C (>406.40 F)
MELTING POINT	40.00 C (104.00F)
SOLUBILITY IN WATER	Reacts with water
SPECIFIC GRAVITY (Water = 1)	1.20
MOLECULAR WEIGHT	Mixture

SECTION 10 - STABILITY AND REACTIVITY

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

ACUTE ORAL TOXICITY (LD50, RAT)
No Data

ACUTE DERMAL TOXICITY (LD50, RABBIT)
No Data

ACUTE INHALATION TOXICITY (LC50, RAT)
No Data

OTHER ACUTE EFFECTS
No Data

IRRITATION EFFECTS DATA
Irritation data from similar products.

CHRONIC/SUBCHRONIC DATA
Component has caused allergic sensitization in animals.

SECTION 12 - ECOLOGICAL INFORMATION

No Data

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL
Comply with all Federal, State and Local Regulations. Dispose of as a non-hazardous solid waste.

SECTION 14 - TRANSPORT INFORMATION

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

SECTION 15 - REGULATORY INFORMATION

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

SECTION 16 - INTERNATIONAL REGULATIONS

CANADA

DSL
Included on Inventory.

WHMIS HAZARD CLASSIFICATION
Class D Division 2A, Class D Division 2B,
BENZENE, 1,1'-METHYLENEBIS(4-ISOCYANTO-

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 and skin contact (R42/43). Irritating to eyes, respiratory system and skin (R36/37/38).

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

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manufacturer.

AUSTRALIA

AICS

Not on Inventory.

JAPAN MITI

Not on Inventory.

PHILIPPINES PICCS

Not on Inventory.

KOREA ECL

Included on Inventory.

CHINA SEPA

Included on Inventory.

PRODUCT CODE SMS852

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