

MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME VERSATHANE[®] SMS-F60 URETHANE PREPOLYMER
 [®]VERSATHANE is a registered trademark of Air
 Products and Chemicals, Inc.

PRODUCT CODE SMSF60

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 DECEMBER 1997

EMERGENCY OVERVIEW

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 Odorless

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.

C.A.S. CHEMICAL NAME Mixture

SYNONYMS None

CHEMICAL FAMILY Isocyanate Prepolymer

EMPIRICAL FORMULA Mixture

INTENDED USE Prepolymer

REVISION NOTES

Updated health hazard data. ACUTE TOXICITY EFFECTS DATA Updated health hazard information. TARGET ORGANS SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects) SIGNS AND SYMPTOMS OF EXPOSURE (Possible Longer Term Effects) Updated Physical Data. Updated Reactivity Information. Updated respiratory protection information. Updated Waste Disposal Information. Updated handling and storage information.

SECTION 2 - INGREDIENTS

#	%	CAS Number and Chemical Name
1.	70.00 - 75.00	26375-23-5 Polymer Of MDI And Butylene Adipate
2.	25.00 - 30.00	101-68-8 BENZENE, 1,1'-METHYLENEBIS(4-ISOCYANTO-

OSHA (ACGIH) EXPOSURE LIMITS

	TWA ppm	mg/m3	STEL ppm	mg/m3	CEILING ppm	mg/m3
1. 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
2. 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

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

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 vapors may cause irritation in the respiratory tract.

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.

SECTION 4 - FIRST AID

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.

SECTION 5 - FIRE AND EXPLOSION DATA

FLASH POINT (closed cup) >176.67 C (>350.01 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.

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 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

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. Polyvinyl alcohol gloves. Insulated gloves 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	White
ODOR	Odorless
pH	No Data
VAPOR PRESSURE (mm Hg at 21C (70F))	0.00
VAPOR DENSITY (Air = 1)	No Data
BOILING POINT	>176.67 C (>350.01 F)
MELTING POINT	No Data
SOLUBILITY IN WATER	Insoluble (<0.1%)
SPECIFIC GRAVITY (Water = 1)	1.16
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

SECTION 11 - TOXICOLOGICAL PROPERTIES

ACUTE ORAL TOXICITY (LD50, RAT)

>5000.00 mg/kg (No deaths)

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.

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 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

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

WHMIS TRADE SECRET REGISTRY NUMBER(S)

None

WHMIS SYMBOLS

Stylized T

EUROPEAN ECONOMIC COMMUNITY (EEC)

EINECS MASTER INVENTORY

Included on Inventory.

EEC SYMBOL

HARMFUL (XN)

EEC RISK (R) PHRASES

May cause sensitization by inhalation (R42). Irritating

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to eyes, respiratory system and skin (R36/37/38). Harmful by inhalation (R20).

EEC SAFETY PHRASES

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).

EEC SPECIAL PHRASES

Contains Isocyanates. See information supplied by the manufacturer.