MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME	DURATHANE* SME-95A URETHANE PREPOLYMER DURATHANE* is a trademark of Air Products and Chemicals. Inc.
PRODUCT CODE	SME95A
MSDS REVISION NUMBER	4727 -02
MANUFACTURER	Air Products and Chemicals. Inc 7201 Hamilton Boulevard. Allentown. PA 18195-1501
TELEPHONE NUMBER	800-345-3148
EMERGENCY TELEPHONE NUMBER(S)	800-523-9374 (Continental U.S.) 215-481-7711 (Outside Continental U.S.) 800-322-9092 (Pennsylvania Only)
DATE PREPARED	JANUARY 1994
REVISION NOTES	None
C.A.S. CHEMICAL NAME	9048-58-2 Polymer of Polytetramethylene Glycol and MDI
SYNONYMS	None
CHEMICAL FAMILY	MDI Prepolymer
EMPIRICAL FORMULA	(C15 H10 N2 O2 * (C4 H8 O)nH2O)x
INTENDED USE	Polyurethane Prepolymer

SECTION 2 - INGREDIENTS

%	CAS Number and Chemical Name
82-86	9048-58-2 Polymer of Polytetramethylene Glycol and MDI
14-18	101-68-8 Benzene.1.1'-methylenebis[4-isocyanato-(MDI)

OSHA (ACGIH) EXPOSURE LIMITS

CAS#	TWA		STEL		CEILING	
	ppm	mg/m3	ppm	mg/m3	ppm	mg/m3
9048-58-2	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)	N/E (N/E)
101-68-8	N/E	N/E	N/E	N/E	0.02	0.2

(0.005)	(0.051)	(N/E)	(N/E)	(N/E)	(N/E)

N/E = Not Established. All values in ( ) are U.S. ACGIH (American Conf. of Gov. Indust. Hygienists) - TLV; All others are OSHA - PEL.

SECTION 3 - HEALTH HAZARDS

EMERGENCY OVERVIEW

HMIS HEALTH RATING 2 FLAMMABILITY 1 REACTIVITY 1

Semi-solid. waxy solid at room temperature.
Straw yellow / Amber Liquid at processing temperature. Slight pungent odor. Severe eye irritant. Moderate skin irritant. Severe respiratory tract irritant.
Sensitizer of skin. Sensitizer of respiratory tract.
Ignition will give rise to a Class B fire.
In case of fire use:. Carbon Dioxide (CO2). Dry Chemical. Alcohol Foam.

ROUTES OF EXPOSURE

Eye Contact
Skin Contact
Ingestion
Inhalation

EXPOSURE STANDARDS

No standards established for the product. See Section 2 for exposure standards on ingredients.

HEALTH HAZARDS

Severe eye irritant. Moderate skin irritant. Severe respiratory tract irritant. Sensitizer of respiratory tract. Sensitizer of skin.

TARGET ORGANS

Respiratory system. Skin. Eye.

SIGNS AND SYMPTOMS OF EXPOSURE (Acute effects)

Contact with eyes causes severe irritation and pain. Inhalation of vapors causes irritation of the respiratory tract and may cause adverse systemic effects.
May cause sensitization by inhalation and skin contact (R42/43).

SIGNS AND SYMPTOMS OF EXPOSURE (Possible Longer Term Effects)

Repeated and/or prolonged contact with the skin may cause allergic reaction/sensitization. Repeated and/or prolonged exposure to vapors may cause allergic respiratory reaction/sensitization. Repeated and/or prolonged exposure to vapors may cause allergic respiratory reaction/sensitization.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Asthma. Chronic respiratory disease (e.g. Bronchitis. Emphysema).

Skin disorders and Allergies.

IRRITATION EFFECTS DATA
No irritation data are known for this product.

ACUTE TOXICITY EFFECTS DATA
Oral LD50 (rat) >5000 mg/kg (estimate)
Dermal LD50 (rabbit) No Data
Inhalation LC50 (rat) No Data

OTHER ACUTE EFFECTS
No Data

CHRONIC/SUBCHRONIC DATA
No Data

SECTION 4 - FIRST AID

EYE CONTACT
Immediately flush eyes with water for at least 15 minutes. Call a physician.

SKIN CONTACT
Wash affected area with soap and water.
Remove contaminated clothing and shoes. Wash before reuse.
Call a physician.

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. Call a physician.

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

CHARACTERISTICS:

FLASH POINT	>110C (>230F) (estimate)
FLASH POINT METHOD(S)	Not applicable
UPPER EXPLOSION LIMIT (UEL)	Not applicable
LOWER EXPLOSION LIMIT (LEL)	Not applicable
AUTOIGNITION TEMPERATURE	Not applicable
FIRE HAZARD CLASSIFICATION (OSHA/NFPA)	Combustible Liquid. Class IIIB

EXTINGUISHING MEDIA

Ignition will give rise to a Class B fire.
In case of fire use: Carbon Dioxide (CO2). Dry Chemical. Alcohol Foam.

SPECIAL FIRE FIGHTING PROCEDURES
Use flooding amounts of water in early stages of fire. If water pollution occurs. notify appropriate authorities. Firefighters should wear butyl rubber boots. gloves. and body suit and a self-contained breathing apparatus. Contain runoff water in dikes. Prevent stream contamination. Keep containers cool with water spray. Avoid skin contact.

UNUSUAL FIRE AND EXPLOSION HAZARDS
May generate toxic or irritating combustion products. May generate carbon monoxide gas. May generate toxic nitrogen oxide gases.

SECTION 6 - REACTIVITY HAZARD DATA

CHEMICAL STABILITY
Stable; Material is stable under a nitrogen blanket.

CONDITIONS TO AVOID (if unstable)
Not applicable

INCOMPATABILITY (Materials to Avoid)
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;
Water. steam. Alkalis (i.e. Sodium or Potassium Hydroxide etc.). Alcohols. Mineral acids (i.e. sulfuric. phosphoric. etc.). Organic acids (i.e. acetic acid. citric acid etc.). Oxidizing Agents (i.e. perchlorates. nitrates etc.).

HAZARDOUS DECOMPOSITION PRODUCTS (from burning. heating. or reaction with other materials)
Carbon Monoxide in a fire. Carbon Dioxide in a fire. Nitrogen Oxides in a fire. Irritating and toxic fumes at elevated temperatures. isocyanates.

HAZARDOUS POLYMERIZATION
May occur.

CONDITIONS TO AVOID (if polymerization may occur)
Moisture. materials that react with isocyanates.

SECTION 7 - SPILL. LEAK AND WASTE DISPOSAL INFORMATION

CONTAINMENT TECHNIQUES (Removal of ignition sources. diking etc)

Stop the leak. if possible. Ventilate the space involved. Construct a dike to prevent spreading.

CLEAN-UP PROCEDURES

If recovery is not feasible. admix with dry soil. sand or non-reactive absorbent and place in a container or dumpster pending disposal.
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.

OTHER EMERGENCY ADVICE

Avoid skin contact. Wear protective clothing. Open enclosed spaces to outside atmosphere. Prevent spilled product from entering streams or drinking water supplies.

WASTE DISPOSAL

As manufactured. product is not a hazardous waste under USEPA regulation (40 CFR Part 261) Comply with all Federal. State and Local Regulations.
Stir the isocyanate waste into the decontamination solution as above. Neither the liquid nor the solid is a hazardous waste. Fill waste drum with above solution and let sit unsealed for 48 hours. Rinse an empty container three times and puncture or otherwise destroy before disposal.

ENVIRONMENTAL EFFECTS

No Data

SECTION 8 - PERSONAL PROTECTION/EXPOSURE CONTROLS

EYE PROTECTION

Splash-proof eye goggles. In emergency situations. use eye goggles with a full face shield.

HAND PROTECTION

Impermeable gloves; Rubber gloves. In emergency situations. wear impermeable gloves with cuffs to prevent spread of material to area above the wrists.

RESPIRATORY PROTECTION

Not required under normal conditions. For emergency situations use self-contained breathing apparatus with pressure demand mode.

PROTECTIVE CLOTHING

Impervious clothing. Long sleeved clothing. Slicker Suit. Rubber boots.

ENGINEERING CONTROLS

In case of insufficient ventilation. wear suitable respiratory equipment (S38).
Adequate general and local exhaust. 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. Safety shower. Wash at the end of each workshift and before eating. smoking or using the toilet. Promptly remove clothing that becomes contaminated. Wash promptly if skin becomes contaminated. Discard contaminated leather articles.

SECTION 9 - STORAGE AND HANDLING

STORAGE

Keep in cool. dry. ventilated storage and in closed containers. Keep away from: oxidizers. heat. flames. moisture. Store under inert atmosphere.

HANDLING

Avoid contact with skin or eyes. Avoid breathing of vapors.
Handle under inert gas atmosphere in dry equipment.
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" bung. positioning on a drum tilter. tilting and pouring out the required amount. Maintain a nitrogen atmosphere in the head space of the drum. Do not use air pressure to remove contents.

OTHER PRECAUTIONS

Carefully read instructions before handling this material. Be sure that all engineering and personal protective equipment is in working order. Work areas must be well ventilated to maintain vapor concentration below a level which is irritating. Emergency showers and eye wash stations should be readily accessible.

SECTION 10 - TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Semi-solid. White waxy solid at room temperature. Straw yellow / Amber Liquid at processing temperature.
COLOR	White. Straw yellow / Amber
ODOR	Slight Pungent
pH	No Data
VAPOR PRESSURE (mm Hg)	NIL

VAPOR DENSITY (Air = 1)	>8
BOILING POINT	>149C (>300F)
FREEZING/MELTING POINT	No Data
SOLUBILITY IN WATER	Reacts with water to form carbon dioxide
SPECIFIC GRAVITY (Water = 1)	1.0641 @ 35C
EVAPORATION RATE (Butylacetate = 1)	No Data
VISCOSITY (CPS)	1600 @ 60C 1000 @ 70C 800 @ 80C
MOLECULAR WEIGHT	No Data

SECTION 11 - TRANSPORTATION INFORMATION

DOT SHIPPING NAME	CHEMICALS. N.O.I. - NOT DOT REGULATED
DOT BULK SHIPPING NAME	CHEMICALS. N.O.I. - NOT DOT REGULATED
IMO SHIPPING DATA	CHEMICALS. N.O.I. - NOT IMO REGULATED
ICAO/IATA SHIPPING DATA	CHEMICALS. N.O.I. - NOT IATA REGULATED

SECTION 12 - U.S. 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)
Respiratory Irritant. Sensitizer. Irritant

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
101-68-8 Benzene.1.1'-methylenebis[4-isocyanato-(MDI) at no more than 18%

SECTION 13 - STATE REGULATIONS

PROPOSITION 65 SUBSTANCE(S) listed by the state of California under the "Safe Drinking Water and Toxic Enforcement Act of 1986"
None

NEW JERSEY TRADE SECRET REGISTRY NUMBER(S)
None

SECTION 14 - 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 HAZARDOUS INGREDIENTS
Included in Section 2

WHMIS SYMBOLS
Stylized T Skull and Crossbones

EUROPEAN ECONOMIC COMMUNITY (EEC)

EINICS MASTER INVENTORY
Included on Inventory

EEC SYMBOL
HARMFUL (XN)

EEC COUNCIL DIRECTIVES RELATING TO THE CLASSIFICATION. PACKAGING AND LABELING OF DANGEROUS SUBSTANCES AND PREPARATIONS RISK (R) AND SAFETY (S) PHRASES

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