

Metzger/McGuire Co.

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MATERIAL SAFETY DATA SHEET**Product Name: Spal-Pro 2000 Part "B"****1. HAZARDOUS SUMMARY**

(As defined by OSHA Hazard Comm. Std., 29 CFR 1910.1200)

*** Physical Hazards None (See Sec. 5)
 *** Health Hazards Based on MDI-irritant (eye, skin, respiratory passages, skin sensitizer), inhalation (TLV), harmful (respiratory sensitizer, lung injury)
 Read the entire MSDS for a more thorough evaluation of hazards.

2. INGREDIENTS

Chemical Name CAS#	%v/v	Exposure Limits in Air					OTHER mg/m ³
		ACGIH		OSHA		IDLH mg/m ³	
		TLV mg/m ³	STEL mg/m ³	PEL mg/m ³	STEL mg/m ³		
Component#1: 101-68-8 (1) Modified Isocyanate Based on 4,4'-Diphenylmethane Diisocyanate		0.051	NE	NE	0.2 C	75	NIOSH REL: TWA=0.050 STEL=0.2 C (10 Mins.) DFG MAK: 0.05 Carcinogen: IARC-3, MAK-B
Component #2: 28182-81-2 (1) Aliphatic Polyisocyanate Based on Homopolymer of Hexamethylene Diisocyanate		NE	NE	NE	NE	NE	Manuf. Guideline (Bayer): TWA=0.5 STEL=1

NE=Not Established. C=Ceiling Limit. See Section 16 for Definitions of Terms Used
 WMIS: HEALTH-2, FLAMMABILITY-1, REACTIVITY-1

3. PHYSICAL DATA

Appearance and Odor: Pale yellow liquid with faint odor
 Boiling Point:: Decomposes at 646°F, 341.1°C
 Vapor Pressure (mm Hg @ 20°C): <0.0001
 Vapor Density (Air=1): No Data
 Solubility in Water: Reacts
 pH: No Data
 Specific Gravity: 1.2
 % Volatile by Volume: 0%

*(Spal-Pro 2000 Part "B" continued)***4. FIRE AND EXPLOSION DATA**

Flash Point:: 400° F, 204°C (COC)
 Autoignition Temperature: No Data
 Flammable Limits (STP): No Data
 Extinguishing Media: Dry chemical, carbon dioxide, halogenated

agents. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous. Special fire fighting protective equipment: Self contained breathing apparatus with full facepiece and protective clothing.

Unusual fire and explosion hazards:

Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

5. REACTIVITY DATA:*Stability:* Stable under normal conditions

Incompatibility: This product will react with any materials containing active hydrogens, such as water, alcohol, ammonia, alkalis, and acids. The reaction with water is very slow under 50°C, but is accelerated at higher temperatures in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent.

Hazardous Decomposition Products:

Combustion products: Carbon dioxide, carbon monoxide. Nitrogen oxides, ammonia. Trace amounts of hydrogen cyanide.

Hazardous Polymerization:

May occur. High temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.

6. HEALTH HAZARD ASSESSMENT:*General:*

No toxicity information is available on this specific preparation; this hazard assessment is based on information that is available on the properties of its components.

Ingestion:

The acute oral LD50 in rat is probably above 10,000 mg/kg. Relative to other materials, a single dose of this product is practically nontoxic by ingestion. Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion.

Eye Contact:

This material will probably irritate human eyes following contact.

Skin Contact:

No irritation is likely to develop following short contact periods with human skin. Skin sensitization and/or irritation may develop after repeated or prolonged contact with skin.

Preliminary data from a research study indicates that the MDI in corn oil injected intradermally in guinea pigs can elicit a respiratory sensitization reaction. The potential for MDI to induce respiratory sensitization in humans and animals is well known; however, this new data indicates that this effect may be induced by skin contact.

Skin Absorption:

Systematically toxic concentrations of this product will probably not be absorbed through human skin.

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Inhalation:

Vapors and aerosols can irritate eyes, nose, and respiratory passages. Severe overexposure may lead to pulmonary edema. MDI can induce respiratory sensitization with asthma - like symptoms similar to those induced by TDI (toluene diisocyanate). Symptoms include chronic cough, tightness of chest with difficulty in breathing. These symptoms may be immediate or delayed up to several hours after exposure. There are reports that chronic exposures may result in permanent decreases in lung function.

Other Effects of Overexposure:

Recently a study was completed where groups of rats were exposed for 6 hour/day, 5 days/week for a lifetime to atmospheres of respirable polymeric MDI aerosol. Overall, the tumor incidence, both benign and malignant, and the number of animals with tumors were not different from controls. However, at the top level only (6 mg/m³), there was a significant incidence of a benign tumor of the lung (adenoma) and one malignant tumor (adenocarcinoma). There were no lung tumors a 1mg/m³ and no effects at 0.2 mg/m³. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is unlikely that tumor formation will occur.

First Aid Procedures:

Skin: Wash material off of skin with plenty of soap and water. If redness, itching, or a burning sensation develops, get medical attention.

Eyes: Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, have eyes examined and treated by medical personnel.

Ingestion: Give 1 or 2 glasses of water to drink. If gastrointestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person).

Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is labored, give oxygen. Consult medical personnel.

7. SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled:

Wear skin, eye, and respiratory protection during cleanup. Soak up materials with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 0.2-0.5% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for ammonium hydroxide). Follow the precautions on the supplier's material safety data sheets. All operations should be performed by trained personnel familiar with the hazards of the chemical used. Treat the spill area with the decontamination solution, using about 10 parts of solution for each part of the spill, and allow it to react for at least 10 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at (800)424-9300.

(Spal-Pro 2000 Part "B" continued)

Disposal Methods:

Slowly stir the isocyanate waste described above using 10 parts of the solution for each part of the isocyanate. Let stand for 48 hours, allowing evolved carbon dioxide to vent away. Neutralize the waste. Neither the solid nor the liquid portion is a hazardous waste under RCRA, 40 CFT 261

Container Disposal:

Drums must be thoroughly drained to process or storage vessels before removal to an appropriate area for subsequent decontamination. Drums must be decontaminated in properly ventilated areas by personnel protected from the inhalation of isocyanate vapors. Spray or pour 5-15 liters of decontamination solution into the drum, making sure the walls are well rinsed. Leave the drum soaking unsealed for 48 hours. Pour out the decontaminating solution and triple rinse the empty container. Puncture or otherwise destroy rinsed container before disposal. Note that the disposal of spent decontamination solutions may be subject to federal, state or local regulations, ordinances, or conditions of discharge permits. Local regulations should also be consulted before final disposition of decontaminated drums.

8. SPECIAL PROTECTION INFORMATION:

TLV or Suggested Control Value:

No ACGIH TLV or OSHA PEL is assigned to this mixture. Control of exposure to below the PEL for the ingredients (See Section 2) may not be sufficient. Minimize exposure in accordance with good hygiene practice. The ACGIH TLV for MDI is 0.005 ppm 8-hour TWA. The OSHA PEL for MDI is 0.02, ceiling. NIOSH recommends 0.005 ppm TWA and 0.02 ppm STEL. These control limits do not apply to previously sensitized individuals or to individuals with existing respiratory diseases, such as chronic bronchitis, emphysema, or asthma. Sensitized individuals should be removed from any further exposure.

Ventilation:

If needed, use local exhaust ventilation to keep airborne concentrations below the TLV. Follow guidelines in the ACGIH publication "*Industrial Ventilation.*" Exhaust air may be needed to be cleaned by scrubbers or filters to reduce environmental contamination.

Respiratory Protection:

Because of the low vapor pressure, ventilation is usually sufficient to keep vapors below the TLV at room temperatures. Exceptions are when the materials are sprayed or heated. If airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied air respirator with a full facepiece, or an air-supplied hood. For emergencies, use a positive pressure self-contained breathing apparatus. Air purifying (cartridge type) respirators are not approved for protection against isocyanates.

Protective Clothing:

Gloves determined to be impervious under the conditions of use. Depending on the conditions of use, additional protection may be required such as apron, arm covers, or

(Spal-Pro 2000 Part "B" continued)

(Protective Clothing continued)

a full body suit. Wash contaminated clothing before re-wearing. Testing of some commercially available protective clothing indicates that clothing constructed of butyl rubber, nitrile rubber, Saranex coated Tyvek and some neoprene garments have excellent resistance to permeation by MDI. Clothing constructed of polyethylene, latex rubber, PVC or poly laminated Tyvek showed little resistance to permeation by MDI. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH

Eye Protection

Chemical tight goggles, full faceshield in addition if splashing is possible.

Other protective equipment:

Eyewash solution and safety shower in work area.

9. SPECIAL PRECAUTIONS OR OTHER COMMENTS

Prevent skin and eye contact. Observe TLV limitations. Avoid breathing vapors or aerosols. Workers should be shower and change to fresh clothing after each shift. A sensitized individual should not be exposed to the product which caused sensitization. Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool area. Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed to isocyanates. These individuals should be indentified through baseline and annual evaluation and removed from further exposure. Medical examination should include medical history, vital capacity, and forced expiratory volume at one second.

10. REGULATORY INFORMATION

TSCA (Toxic Substances Control Act) Regulations, 40 CFR 710

All ingredients are on the TSCA Chemical Substance Inventory

CERCLA and SARA Regulations (40 CFR 355, 370, and 372)

Section 313 Supplier Notification. This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

50% MDI, listed as Methylenebis (phenylisocyanate), MBI (CAS 101-68-8).

The information herein is given in good faith but no warranty, expressed or implied, is made.

Prepared/Reviewed: 05/10/99

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MATERIAL SAFETY DATA SHEET

Product Name: Spal-Pro 2000 Part "A"

1. HAZARDOUS INGREDIENTS

Chemical Name CAS#	%v/v	Exposure Limits in Air					
		ACGIH		OSHA		IDLH	OTHER
		TLV mg/m ³	STEL mg/m ³	PEL mg/m ³	STEL mg/m ³		
Component#1: 9082-00-2 Polyethylene- Polypropylene Glycol Glycerol Ether	60-100	NE	NE	NE	NE	NE	NE
Component #2: 106264-79-3 Di-(Methylthio) Toluenediamine	10-30	NE	NE	NE	NE	NE	NE
Other components which are each present in less than 1% concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).	Balance	None of the other components contribute significant additional hazards at the concentrations present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200). U.S. State equivalent Standards and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).					
NE=Not Established. C=Ceiling Limit. See Section 16 for Definitions of Terms Used WMIS: HEALTH-2, FLAMMABILITY-1, REACTIVITY-1							

2. PHYSICAL DATA

Boiling Point::	Not Established
Vapor Pressure	Not Established
Solubility in Water:	Soluble
Specific Gravity:	1.05
Appearance:	Cloudy gray liquid
Odor:	Slight ammoniacol odor
% Volatile by Volume:	0%

3. FIRE AND EXPLOSION DATA

Flash Point::	400° F, 204°C (COC)
Autoignition Temperature:	No Data
Flammable Limits (STP):	No Data
Extinguishing Media:	Dry chemical, carbon dioxide, halogenated agents.

If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous. Special fire fighting protective equipment: Self contained breathing apparatus with full facepiece and protective clothing.

(Spal-Pro 2000 Part "A" continued)

4. REACTIVITY DATA

Stability: stable
Incompatibility: alkali or alkaline earth materials, strong acids, brass and elastomeric materials
Hazardous Decomposition Products: CO₂, CO, NO
Hazardous Polymerization: No

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

Action for Spills/Leaks: Dike with absorbent material and place in overpack for disposal.
Disposal Methods: Dispose of according to local, state and federal regulations

6. HEALTH HAZARD DATA:

Eye: The tertiary amine catalyst(s) used in this blend are by themselves severely irritating and corrosive to the eyes.
Skin Contact: The tertiary amine catalyst(s) used in this material by themselves are severely irritating to the skin.
Ingestion: The tertiary amine catalyst(s) used in this material by themselves can cause severe damage to the mucous membrane if swallowed.
Inhalation: The tertiary amine catalyst(s) released from this mixture may include nasal irritation, dizziness, fatigue, nausea, headache, possible loss of consciousness or asphyxiation. Tertiary amine catalyst(s) may be released during normal processing conditions. Proper precautionary steps should be taken to maintain amine levels of amine catalyst(s) may cause lung damage and glaucopsia.
Systematic & Other Effects: No known effects.

7. FIRST AID

Eyes: Flush 15 minutes with water, see physician
Skin: Wash with soap and water, see physician if irritation persists, do not apply greases or ointments.
Ingestion: DO NOT INDUCE VOMITING; see physician
Inhalation: Remove person to fresh air, consult medical personnel.

NOTE TO PHYSICIANS: If additional information about this mixture is required, contact Metzger/McGuire Co.

8. HANDLING PRECAUTIONS:

Ventilation: Required to maintain amine catalysts levels below irritating levels.
Respiratory Protection: A NIOSH approved respirator, if levels of amine catalysts are above acceptable limits.
Skin Protection: Clothing to prevent skin contact

(Spal-Pro 2000 Part "A" continued)

8. HANDLING PRECAUTIONS (continued):

Eye Protection: Safety glasses or goggles required, do not wear contact lenses

9. REGULATORY INFORMATION:

TGCA: All components in this mixture are listed on the inventory
SARA HAZARD CATEGORY: Immediate Health, Delayed Health, Fire
SARA Title III: Requires emergency planning based on TPQ's and release reporting based on RQ's in 40 CFR 335 (used by SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are:

Ethylene Oxide 75218 .002%

CERCLA: Requires notification to the NRC of the release of quantities of hazardous substances equal to or greater than the RQ in 40 CFR 302.4. Components present in this product at levels which could require reporting under the statute are:

Ethylene Oxide

CALIFORNIA PROP. 65: This product contains levels of the listed substances in which the state of California has found cancer, birth defects, or other harm which could require a warning under this statute:

****NONE****

MASSACHUSETTS: R-T-K Substance list (MSL) materials present in the product:

****NONE****

PENNSYLVANIA: R-T-K Hazardous substance list materials present in this product:

****NONE****

Additional Information:

The amine catalyst(s) used in this mixture are by themselves moderately toxic by swallowing and may be harmful if absorbed through the skin. High vapor concentrations of catalyst(s) may cause lung damage and glaucopsia. Avoid chronic overexposure to aerosols and mists. The concentration of catalyst(s) in this product is low and should not pose a substantial health hazard during the normal processing conditions if the hazard warnings on this document are observed. The information accumulated herein is believed to be accurate but is not warranted to be, whether originating with Metzger/McGuire Co. or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstance.

Prepared by: Steve Metzger
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