

PRO-POXY AWP "A" MATERIAL SAFETY DATA SHEET

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EMERGENCY CONTACT: (CHEMTREC) 800-424-9300
Outside USA and Canada, call CHEMTREC collect: 703-527-3887

This material safety data sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. This product may be considered to be a hazardous chemical under that standard (Refer to the OSHA classifications under Section I). This information is required to be disclosed for safety in the workplace.

DATE REVISED: February 28, 2008

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: PRO-POXY AWP "A"
CHEMICAL FAMILY: Diisocyanate
CHEMICAL NAME: Non Applicable
SYNONYMS: (MDI)
TSCA: On Inventory

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

<u>INGREDIENTS/CAS#</u>	<u>CONCENTRATION (%)</u>	<u>CURRENT TLV/PEL</u>
Polymeric Diphenylmethane Diisocyanate (Polymeric MDI) 9016-87-9	60-80	Not Listed
Contains 4,4-Diphenylmethane Diisocyanate (4,4MDI) (Approx. 50%) CAS# 101-68-8		ACGH.005PPM TWA
Aromatic Hydrocarbon Mixture (69009-90-1, 29225-91-0)	<35	NE

NE: not established ND: not determined NA: not applicable

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance and Odor: Amber to brown liquid, slightly musty
Odor Threshold: .4ppm (4,4' Diphenylmethane Diisocyanate)
Melt Point/Freeze Point: N.E.
V.O.C. %: 0
Boiling Point: Decomposes @ 392°F
Specific Gravity: 1.24
Vapor Pressure: <0.0003 MM HG
Vapor Density (Air=1): 8.5
Bulk Density: 10.17 lb/gal
Solubility in water: Reacts with water

SECTION IV - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT: >320°F COC (Hydrocarbon)
FLAMMABLE LIMITS IN AIR BY VOLUME: Lower (LEL): N/E Upper (UEL): N.E.
AUTO IGNITION TEMPERATURE: 465°F (Diphenylmethane Diisocyanate)
RATE OF BURNING: N.E.
EXPLOSIVE POWER: None
SENSITIVITY TO MECHANICAL IMPACT: None
SENSITIVITY TO STATIC DISCHARGE: None

PRO-POXY AWP "A"

MATERIAL SAFETY DATA SHEET

COMBUSTION PRODUCTS: Carbon monoxide, carbon dioxide, nitrogen oxides

EXTINGUISHING MEDIA: Dry chemical extinguishers such as monoammonium phosphate, potassium sulfate, potassium chloride. Additionally, carbon dioxide, high expansion (protenic) chemical foam. Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES: Do not direct solid water stream or foam into hot, burning pools; this may cause frothing and increase fire intensity. Use self-contained breathing apparatus and body covering protective clothing; burning can produce oxides of carbon and nitrogen.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with certain finely divided reactive materials may cause reactions. Decomposition products may be hazardous.

SECTION V – HEALTH HAZARD DATA

INHALATION: This product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. Symptoms may include irritation to the eyes, nose, throat and lungs. Possibly combined with dryness of the throat, tightness of chest and difficulty breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons.

SKIN CONTACT: Moderate irritant repeated and/or prolonged contact may cause skin sensitization. Animal studies have shown that respiratory sensitization can be induced by skin contact with known respiratory sensitizer including diisocyanate. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

EYE CONTACT: The aerosol, vapor or liquid will irritate human eyes following contact.

INGESTION: Ingestion may cause irritation of the gastrointestinal tract. Based on the oral LD50, this product is considered practically non-toxic by ingestion.

CHRONIC EFFECTS: A study where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmosphere 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. Only at the top level (MG/CU.M), there was a significant incidence of a benign tumor of the lung (Adenoma) and one malignant tumor (Adenocarcinoma). There were no lung tumors at 1MG/CU.M and no effects at 0.2 MG/CU.M. 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 lung damage, it is highly unlikely that tumor formation will occur. There are reports that chronic exposure may result in permanent decrease in lung function.

CARCINOGENICITY: The ingredients of this product are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA, and not listed as carcinogens by NTP.

MUTAGENICITY: There is no substantial evidence of mutagenic potential.

REPRODUCTIVE EFFECTS: No adverse reproductive effects are anticipated.

TERATOGENICITY AND FETOTOXICITY: No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations well in excess of the defined occupations limits.

SECTION VI – EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with clean, lukewarm water at low pressure for at least 15 minutes, occasionally lifting eyelids. Consult a physician immediately.

SKIN CONTACT: Remove contaminated clothing. Wash exposed areas thoroughly with warm soapy water. Contaminated clothing should be properly laundered before reusing.

PRO-POXY AWP "A"

MATERIAL SAFETY DATA SHEET

INHALATION: Remove victim from areas of exposure to safe area. If not breathing, give mouth to mouth resuscitation. If breathing is difficult give oxygen. Consult a physician immediately.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

NOTE TO PHYSICIAN: No specific antidote, supportive care, treatment based on judgment of physician in response to reactions of the patient. The manifestations of respiratory symptoms, including pulmonary edema resulting from acute exposure, may cause respiratory sensitization.

SECTION VII – EMPLOYEE PROTECTION RECOMMENDATIONS

VENTILATION: Natural or mechanical. Local exhaust will keep the TLV below minimum in most cases. Spills or other emergencies may require more forceful ventilation means.

RESPIRATORY PROTECTION: This product has demonstrated no observable effects at room temperature. However, it is highly recommended that an air purifying respirator with organic filter cartridges be worn. In addition, in any spray application, a supplied air source must be provided.

PROTECTIVE CLOTHING: Gloves determined to be impervious under the conditions of use should be worn always when working with this products. Depending on conditions of use, additional protection may be required such as apron, arm covers, or full body suit. Wash contaminated clothing before re-wearing. Protective clothing should be selected and used in accordance with "Guidelines for the Selections of Chemical Protective Clothing" published by ACGIH.

EYE PROTECTION: Liquid chemical goggles or full-face shield. No contact lenses should be worn.

SKIN PROTECTION: Chemical resistant gloves such as natural rubber or polyvinyl alcohol. Cover as much exposed skin as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

OTHER: Unhindered access to safety shower and eye wash stations. As a general hygienic practice, wash hands and face after use. Showers and cleaning of clothes are recommended. Follow all label instructions. Educate and train employees in safe use.

SECTION VIII - REACTIVITY DATA

STABILITY: Stable under recommended storage conditions.

HAZARDOUS POLYMERIZATION: May occur with incomplete reactants. Especially strong bases, water or temperatures over 374°F. Temperatures over 120° F accelerate the reaction with water.

INCOMPATIBILITY (MATERIALS TO AVOID): Water, acid, bases, metal compounds and surface active materials. Avoid water as it reacts to form heat, CO₂ and insoluble urea. Some reactions are violent in the presence of the above mentioned materials.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Aliphatic fragments, CO, NH₃, CO₂.

SECTION IX – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Contain the spilled material and then cover with a loose, absorbent material such as oil dry, vermiculite, sawdust, or Fuller's earth. Shovel waste material into proper waste containers and wash contaminated area with hot soapy water, thoroughly. Ventilate area to remove vapors. Transport container to well ventilated area and treat with a neutralizing solution consisting of a mixture of water and 3-8% concentrated ammonium hydroxide or 5-10% sodium carbonate. Add approximately 10 parts of neutralizer per part of isocyanate with mixing. Allow to stand for 48 hours letting CO₂ to escape.

WASTE DISPOSAL METHOD: Waste material may be incinerated or disposed in compliance with all relevant local, state, and federal laws and regulations controlling environmental protection. This material is not a hazardous waste under RCRA 40 CFR 261.

PRO-POXY AWP "A" MATERIAL SAFETY DATA SHEET

EMPTY CONTAINER PRECAUTIONS: Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. All containers should be disposed of in an environmentally safe manner and in accordance with government regulations.

SECTION X – SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE: (MIN/MAX): 65F° (18C°) to 75F° (24C°)

AVERAGE SHELF LIFE: Six (6) months from date of manufacture.

SPECIAL SENSITIVITY (HEAT, LIGHT, MOISTURE): This product is reactive to water. Containers should be tightly sealed to prevent moisture contamination. Do not expose to high temperatures for any length of time. A nitrogen blanket should be used for bulky storage.

PRECAUTIONS IN HANDLING AND STORING: If contamination of the isocyanate is suspected, do not re-seal container because of possible rupture due to pressure buildup. Always slowly vent container when opening to relieve any pressure buildup.

SECTION XI – SHIPPING DATA

TECHNICAL SHIPPING NAME:	Diphenylmethane – 4,4 Diisocyanate	
UN NUMBER:	None	
PRODUCT LABEL:	"A" Component established	
PLACARDS REQUIRED:	None	HMIS: H3,F2,R1
FREIGHT CLASS PACKAGE:	Chemicals, NOI	

DOT (HM-181) (Domestic Surface)

PROPER SHIPPING NAME:	Diphenylmethane – 4,4 Diisocyanate
REPORTABLE QUANTITY:	5000 pounds
HAZARD CLASS OR DIVISION:	Bulk (Greater than 5000 lb. units) Class 9
HAZARDOUS SUBSTANCE:	None
HAZARD PLACARDS:	None

IMO/IMDG CODE (OCEAN): Not regulated

TDG: Not regulated

IATA/ICAO CLASS): Not regulated

TRANSPORTATION EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

SECTION XII – REGULATORY INFORMATION

OSHA CLASSIFICATION: Physical-not related. Health-highly toxic, respiratory sensitizer, skin sensitizer and irritant.

TSCA REGULATIONS: All ingredients are on the TSCA Chemical Substance Inventory.

EPCRA SECTION 313 (40 CFR 372): This product contains the following chemical(s) subject to reporting requirements: Approx. 30-70% 4,4-MDI (CAS 101-68-8)

CERCLA: 4,4-Diphenylmethane Diisocyanate (CAS 101-68-8) has a 5000 pound RQ. Any spill or release above the RQ must be reported to the national response center (800-424-8802). The % of the 4,4 MDI in this product is listed in Section II of this MSDS.

OTHER REGULATIONS WHICH APPLY TO THIS PRODUCT: Massachusetts Right to Know, Pennsylvania Right to Know, New Jersey Right to Know, CERCLA

THIS PRODUCT DOES NOT CONTAIN ANY OZONE DEPLETING SUBSTANCES.

PRO-POXY AWP "A" MATERIAL SAFETY DATA SHEET

CANADIAN CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all of the information required by CPR.

CONTROLLED PRODUCTS REGULATIONS (WHMIS) CLASSIFICATION: D-1A: Very toxic (Acute Effects). D-2A: Very toxic. D-2B: Toxic.

CEPA/CANADIAN DOMESTIC SUBSTANCE LIST (DSL): The substance(s) in this product is on the Canadian Domestic Substances List (CEPA DSL).

USER'S RESPONSIBILITY: A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers or employees, as the case may be.

DISCLAIMER: The information contained herein is, to the best of our knowledge and belief, accurate and current as of the date of this MSDS. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations or warranties, either expressed or implied or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

PRO-POXY AWP "B" MATERIAL SAFETY DATA SHEET

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DATE REVISED: February 28, 2008

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: PRO-POXY AWP "B"
CHEMICAL FAMILY: Polyol System
CHEMICAL NAME: Polyether Polyol System
SYNONYMS:
CAS NUMBER: N/A Mixture
TSCA: On Inventory

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

<u>INGREDIENTS/CAS#</u>	<u>CONCENTRATION (%)</u>	<u>CURRENT TLV/PEL</u>
Propoxylated Polyols 9049-71-2, 9003-11-6, 102-60-3	<70	N.E.
Epoxy Resin 25068386	<20	
Aluminosilicate	<.2	10MG/CU.M DUST
Isoparaffinic Hydrocarbon 64742-48-9	<30	N.E.
NE: not established	ND: not determined	NA: not applicable

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance and Odor: Amber to dark brown liquid, faint acetic-like odor
Odor Threshold: N.E.
Melt Point/Freeze Point: N.E.
V.O.C. %: 11.9
Boiling Point: 410°-550°F
Specific Gravity: Approx. 1.2
Vapor Pressure: 0.14 MM HG @ 20
Vapor Density (Air=1) ND
Bulk Density: Approx. 9.82 lbs/gal
Solubility in water: Considerable (Greater than 50% soluble in water)

SECTION IV - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT: 180°F (82°C) PMCC
FLAMMABLE LIMITS IN AIR BY VOLUME: Lower (LEL): N/E Upper (UEL): N/E
AUTO IGNITION TEMPERATURE: 910°F

PRO-POXY AWP "B" MATERIAL SAFETY DATA SHEET

EXTINGUISHING MEDIA: Dry chemical extinguishers such as monoammonium phosphate, potassium sulfate, potassium chloride. Additionally, carbon dioxide, high expansion (protenic) chemical foam. Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES: Do not direct solid water stream or foam into hot, burning pools; this may cause frothing and increase fire intensity. Use self-contained breathing apparatus and body covering protective clothing; burning can produce oxides of carbon and nitrogen.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustible liquids are contained in this product. Do not cut, weld or grind on or near container due to possible toxic fume generation or explosion due to flammable vapor residue. Use explosion proof equipment where vapor concentrations can become ignitable. Ground transfer lines and equipment. Keep away from source of ignition.

SECTION V – HEALTH HAZARD DATA

ANIMAL TOXICITY:	Oral, LD 50 (Ingestion)	N.E.
	Dermal, LD 50 (Skin Contact)	N.E.
	Inhalation, LC 50 (4 Hrs.)	N.E.
	Aquatic, LC 50 (24 Hrs.)	N.E.
	Eyes	N.E.
	Skin	N.E.

HUMAN EFFECTS OF OVEREXPOSURE:

INHALATION: May cause irritation to the throat and respiratory passages, but at room temperature, vapor inhalation is not considered hazardous.

SKIN CONTACT: This product contains amine catalyst and will cause irritation to the skin after prolonged contact. Some individuals may be more sensitive to exposure.

INGESTION: This is not considered a common occupational route of exposure, and no observable effects have been demonstrated.

THRESHOLD LIMIT VALUE (ACGIH): No TLV has been established for this product as a system.

PERMISSIBLE EXPOSURE LIMITS (OSHA): Same as above.

SECTION VI – EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with clean, lukewarm water at low pressure for at least 15 minutes, occasionally lifting eyelids. Consult a physician immediately.

SKIN CONTACT: Remove contaminated clothing. Wash exposed areas thoroughly with warm soapy water. Contaminated clothing should be properly laundered before reusing.

INHALATION: Remove victim from areas of exposure to safe area.

INGESTION: Do not induce vomiting. Never induce vomiting or give anything to drink to an unconscious person.

NOTE TO PHYSICIAN: Basically treatment is symptomatic.

PRO-POXY AWP "B" MATERIAL SAFETY DATA SHEET

SECTION VII – EMPLOYEE PROTECTION RECOMMENDATIONS

VENTILATION: Natural or mechanical. Local exhaust will keep the TLV below minimum in most cases. Spills or other emergencies may require more forceful ventilation means.

RESPIRATORY PROTECTION: This product has demonstrated no observable effects at room temperature. However, it is highly recommended that an air purifying respirator with organic filter cartridges be worn. In addition, in any spray application, a supplied air source must be provided.

EYE PROTECTION: Liquid chemical goggles or full-face shield. No contact lenses should be worn.

SKIN PROTECTION: Chemical resistant gloves such as natural rubber or polyvinyl alcohol. Cover as much exposed skin as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

OTHER: Unhindered access to safety shower and eye wash stations. As a general hygienic practice, wash hands and face after use. Showers and cleaning of clothes are recommended. Follow all label instructions. Educate and train employees in safe use.

SECTION VIII - REACTIVITY DATA

STABILITY: Stable.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITY (MATERIALS TO AVOID): Oxidizing materials, isocyanates, and acids. Alkali or alkaline earth metals (aluminum, zinc, beryllium and copper).

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Aliphatic fragments, CO, NH₃, CO₂.

SECTION IX – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Contain the spilled material and then cover with a loose, absorbent material such as oil dry, vermiculite, sawdust, or Fuller's earth. Shovel waste material into proper waste containers and wash contaminated area with hot soapy water, thoroughly. Ventilate area to remove vapors.

WASTE DISPOSAL METHOD: Waste material may be incinerated or disposed in compliance with all relevant local, state, and federal laws and regulations controlling environmental protection.

EMPTY CONTAINER PRECAUTIONS: Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. All containers should be disposed of in an environmentally safe manner and in accordance with government regulations.

SECTION X – SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE: Store away from heat, ignition source and open flame (MIN/MAX): 65F° (18C°) to 75F° (24C°)

AVERAGE SHELF LIFE: Six (6) months from date of manufacture.

SPECIAL SENSITIVITY (HEAT, LIGHT, MOISTURE): This product is hygroscopic. Containers should be tightly sealed to prevent moisture contamination. Do not expose to high temperatures for any length of time.

PRECAUTIONS IN HANDLING AND STORING: If contamination of the isocyanate is suspected, do not re-seal container because of possible rupture due to pressure buildup. Always slowly vent container when opening to relieve any pressure buildup.

PRO-POXY AWP "B" MATERIAL SAFETY DATA SHEET

SECTION XI – SHIPPING DATA

TECHNICAL SHIPPING NAME: Polyol System
FREIGHT CLASS (BULK): Polypropylene Glycol
FREIGHT CLASS PACKAGE: Polypropylene Glycol
PRODUCT LABEL: Established
PLACARDS REQUIRED: None HMIS: F-1,H-1, R-1

DOT (HM-181) (Domestic Surface)
PROPER SHIPPING NAME: Not Regulated
HAZARD CLASS OR DIVISION: Non Regulated
UN/NA NUMBER: None
HAZARDOUS SUBSTANCE: None
HAZARD PLACARD(s): None

IMO/IMDG CODE (OCEAN)

PROPER SHIPPING NAME: Not regulated
HAZARD CLASS DIVISION NUMBER: Non Regulated
UN NUMBER: None

TRANSPORTATION EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

USER'S RESPONSIBILITY: A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers or employees, as the case may be.

DISCLAIMER: The information contained herein is, to the best of our knowledge and belief, accurate and current as of the date of this MSDS. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations or warranties, either expressed or implied or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.