

**MATERIAL SAFETY DATA SHEET**

**COMPOSITE POLYMER DESIGN  
275 BRIDGE POINT DRIVE  
SO. ST. PAUL, MN 55075  
800-755-8568**

**PRODUCT: EZ-83, EZ-84, EZ-87  
EPOXY HARDENER**

|   |                     |               |
|---|---------------------|---------------|
| HAZARDOUS<br>MATERIAL<br>IDENTIFICATION<br>SYSTEM | HEALTH HAZARD       | 3-SERIOUS     |
|   | FLAMMABILITY HAZARD | 2-SLIGHT      |
|   | REACTIVITY HAZARD   | 0             |
|   | PERSONAL PROTECTION | D-FACE SHIELD |
|   |                     | GLOVES, APRON |

SECTION I. MATERIAL IDENTIFICATION

TRADE/MATERIAL NAME: EZ-83, EZ-84, EZ-87 EPOXY HARDENER

DESCRIPTION: EPOXY HARDENER CAS: MIXTURE

MSDS REVISION DATE: SEPTEMBER 30, 2001

D.O.T. PROPER SHIPPING NAME (49 CFR 172.101): FLAMMABLE LIQUID,  
TOXIC, N.O.S. (CONTAINS STYRENE MONOMER, INHIBITED AND 4,4'-  
METHYLENEDIANILINE)

D.O.T. HAZARD CLASS: 3 (6.1)

D.O.T. ID NO. (49 CFR 172.101): UN 1992

D.O.T. PACKING GROUP: III

D.O.T. LABEL REQUIRED (49 CFR 172.101): FLAMMABLE LIQUID, TOXIC

**FOR CHEMICAL EMERGENCIES CALL CHEMTREC 1-800-424-9300**

SECTION II. INGREDIENTS AND HAZARDS

| INGREDIENT NAME:                         | CAS NUMBER   | PERCENT                          | EXPOSURE LIMITS           |
|--|--------------|----------------------------------|---------------------------|
| 4,4'-METHYLENEDIANILINE                  | 101-77-9     | 30-45                            | 10 PPB TWA                |
|  |              | (OSHA) (MDA) 100 PPB STEL (OSHA) | 5 PPB ACTION LEVEL (OSHA) |
|  |              | 100 PPB TWA (ACGIH)              | SKIN NOTATION             |
| POLYMETHYLENE POLYPHENYL<br>AMINE        | 25214-70-4   | 15-35                            | NE                        |
| AMINE TERMINATED POLYMER<br>(MW 300-400) | 26376-58-9   | 5-15                             | NE                        |
| STYRENE MONOMER                          | 100-42-5     | 5-15                             | 50 PPM TWA                |
|  | (OSHA/ACGIH) | 100 PPM STEL (OSHA/ACGIH)        |                           |
| BENZYL ALCOHOL                           | 100-51-6     | 10-25                            | NE                        |

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SECTION III. PHYSICAL DATA

APPEARANCE AND ODOR: DARK AMBER LIQUID WITH A STYRENE ODOR.

|                          |                                  |
|--------------------------|----------------------------------|
| BOILING POINT:>200°C     | VAPOR PRESSURE: 1.09 MMHG (55°C) |
| WATER SOLUBILITY(%): N/A | VAPOR DENSITY(AIR=1):N/A         |
| PH: NOT AVAILABLE        | VOC GRAMS/LITER: NOT AVAILABLE   |
| MELTING POINT:N/A        | DENSITY (G/ML): 1.11             |

SECTION IV. FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): 100°F PMCC

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, WATER SPRAY.  
USE WATER TO KEEP CONTAINERS COOL.

UNUSUAL FIRE OR EXPLOSION HAZARDS: SINCE VAPORS ARE EXCEEDING  
IRRITATING WHEN INHALED, A SELF-CONTAINED, POSITIVE PRESSURE  
BREATHING APPARATUS SHOULD BE AVAILABLE TO FIREMEN.

SECTION V. REACTIVITY DATA

CHEMICAL STABILITY: STABLE; HOWEVER, HIGH TEMPERATURES MAY CAUSE  
SELF-POLYMERIZATION OF THE STYRENE MONOMER.

CHEMICAL INCOMPATIBILITIES: AVOID CONTACT WITH STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON DIOXIDE, CARBON  
MONOXIDE, AND NITROGEN OXIDES.

HAZARDOUS POLYMERIZATION: WILL OCCUR AT HIGH TEMPERATURES  
(>150°F).

CONDITIONS TO AVOID: AVOID CONTACT WITH WATER, ALCOHOLS, STRONG  
BASES, METAL COMPOUNDS OR SURFACE ACTIVE MATERIALS

SECTION VI. HEALTH HAZARD INFORMATION

EMERGENCY OVERVIEW:

APPEARANCE AND ODOR: DARK AMBER LIQUID WITH A STYRENE ODOR.

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STATEMENT OF HAZARD:

**WARNING: COMBUSTIBLE LIQUID**

**CAUTION:** HIGH VAPOR CONCENTRATIONS MAY CAUSE NARCOSIS. MAY CAUSE SKIN AND EYE IRRITATION. VAPOR MAY IRRITATE THE RESPIRATORY TRACT. HARMFUL IF ABSORBED THROUGH THE SKIN, SWALLOWED, OR INHALED.

CHRONIC HAZARD WARNING:

**DANGER:** CONTAINS MDA, LEVELS OF DANGER DEPENDS ON THE DURATION AND EXPOSURE LEVELS.

PRIMARY ROUS OF EXPOSURE: SKIN CONTACT

CARCINOGEN LISTING BY: OSHA-NO IARC-YES

**POTENTIAL HEALTH EFFECTS:**

EYE CONTACT MAY CAUSE MODERATE IRRITATION WITH CORNEAL INJURY. VAPORS MAY IRRITATE THE EYES, CAUSING TEARS. EXCESSIVE VAPOR CONCENTRATIONS WILL IRRITATE THE UPPER RESPIRATORY TRACT AND MAY CAUSE NARCOSIS. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE SKIN IRRITATION, POSSIBLE BURNS, AND DRYING OR FLAKING OF THE SKIN. OVEREXPOSURE TO THIS PRODUCT CAN CAUSE FEVER, CHILLS, LOSS OF APPETITE, VOMITING AND JAUNDICE. MAY STAIN SKIN. HARMFUL AMOUNTS OF THIS MATERIAL CAN BE ABSORBED THROUGH THE SKIN. THIS MATERIAL CONTAINS 4,4' METHYLENEDIANILINE (MDA) WHICH MAY CAUSE CANCER AND IS A LIVER TOXIN. RISK OF CANCER DEPENDS ON THE LENGTH AND LEVEL OF EXPOSURE. IN ADDITION, LONG-TERM (CHRONIC) EXPOSURE MAY RESULT IN DAMAGE TO THE LIVER, KIDNEYS, BLOOD, SPLEEN, THYROID AND EYES. CHRONIC OVEREXPOSURE TO STYRENE MAY AFFECT THE CENTRAL NERVOUS SYSTEM.

FIRST AID:

EYE CONTACT: FLUSH WITH LARGE AMOUNTS OF WATER FOR 15 MINUTES. CONTACT PHYSICIAN IMMEDIATELY.

SKIN CONTACT: IMMEDIATELY FLUSH SKIN WITH WATER FOR 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CONTACT PHYSICIAN IMMEDIATELY.

INHALATION: REMOVE TO FRESH AIR. CONTACT PHYSICIAN

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IMMEDIATELY.

INGESTION: DO NOT INDUCE VOMITING. CONTACT PHYSICIAN OR REGIONAL POISON CONTROL CENTER IMMEDIATELY.

\*4,4' METHYLENEDIANILINE IS CONSIDERED AN ANIMAL CARCINOGEN BY IARC AND NTP. RISK TO YOUR HEALTH DEPENDS ON LEVEL AND DURATION OF EXPOSURE.

SECTION VII. SPILL, LEAK, AND DISPOSAL INFORMATION

SPILL / LEAK PROCEDURES: IN CASE OF SPILL, CONTAIN WITH A SUITABLE DIKING MATERIAL. IN ADDITION TO THE PROTECTIVE EQUIPMENT, WEAR IMPERMEABLE BOOTS. VENTILATE THE AREA THOROUGHLY. KEEP ALL UNNECESSARY PEOPLE AWAY. SPILLED MATERIAL SHOULD BE ABSORBED IN SAWDUST, SAND OR OTHER ABSORBENT. PLACE INTO OPEN-TOPPED CONTAINERS AND COVER LOOSELY; STORE FOR AT LEAST 12 HOURS BEFORE SEALING THE CONTAINER.

WASTE MANAGEMENT / DISPOSAL: CONTROLLED INCINERATION OR BURIED LANDFILL DISPOSAL SHOULD BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

RCRA WASTE CODE: NONE  
CERCLA HAZARDOUS SUBSTANCES & RQ: 4,4 METHYLENEDIANILINE  
(RQ: 1 POUND) STYRENE (RQ: 1000 POUNDS)

SECTION VIII. SPECIAL PROTECTION INFORMATION

EXPOSURE CONTROLS:  
THE LEVEL OF ENGINEERING CONTROL DEPENDS ON HOW THIS MATERIAL IS PROCESSED. SELECTION OF SPECIFIC PERSONAL PROTECTIVE EQUIPMENT WILL DEPEND ON THE OPERATION.

PROTECTIVE CLOTHING: WEAR PROTECTIVE CLOTHING THAT IS IMPERVIOUS TO THIS PRODUCT. SELECTION OF GLOVES, BOOTS, APRON OR FULL-BODY SUIT WILL DEPEND ON OPERATION.

EYE PROTECTION: WEAR CHEMICAL SPLASH-PROOF GOGGLES OR A FACE SHIELD. VAPOR RESISTANT GOGGLES ARE NECESSARY IF CONTACT LENSES ARE WORN BY EMPLOYEES.

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RESPIRATOR: IF AIRBORNE CONCENTRATION OF MDA IS LESS THAN OR EQUAL TO 10 TIMES THE PEL, WEAR A HALF-MASK RESPIRATOR WITH A COMBINATION ORGANIC VAPOR/HEPA (HIGH EFFICIENCY PARTICULATE IN AIR FILTER) CARTRIDGE.

IF THE AIRBORNE CONCENTRATION IS LESS THAN OR EQUAL TO 50 TIMES THE MDA PEL, WEAR A FULL FACEPIECE RESPIRATOR WITH A FULL FACEPIECE POWERED AIR-PURIFYING RESPIRATOR WITH HEPA CARTRIDGES IS REQUIRED WHEN THE AIRBORNE CONCENTRATION IS LESS THAN OR EQUAL TO 1000 TIMES THE PEL OF MDA.

WEAR EITHER A SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE IN POSITIVE PRESSURE MODE OR A FULL FACEPIECE POSITIVE PRESSURE DEMAND SUPPLIED AIR RESPIRATOR WITH AUXILIARY SELF-CONTAINED AIR SUPPLY IF THE AIRBORNE CONCENTRATION OF MDA IS UNKNOWN.

VENTILATION: USE EXHAUST VENTILATION TO KEEP AIRBORNE LEVELS BELOW OSHA-RECOMMENDED EXPOSURE LIMITS. DO NOT USE THIS PRODUCT IN A POORLY VENTILATED AREA. ADEQUATE VENTILATION IS ESSENTIAL TO PREVENT OXYGEN DEFICIENCY AND CONCENTRATION OF VAPORS, WHICH COULD LEAD TO LIFE-THREATENING NARCOSIS.

GENERAL HYGIENE RECOMMENDATIONS: BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES, WASH FACE AND HANDS THOROUGHLY WITH SOAP AND WATER. IF SIGNIFICANT AMOUNTS OF THIS MATERIAL GET ON WORK CLOTHES, THE EMPLOYEE SHOULD SHOWER IMMEDIATELY AND THE CLOTHING SHOULD BE LAUNDERED BEFORE IT IS WORN AGAIN. ANY EMPLOYEE WHO HAS BEEN EXPOSED TO MDA AT OR ABOVE THE ACTION LEVEL(5PPB) FOR 30 OR MORE DAYS A YEAR, OR WHO HAS HAD DERMAL EXPOSURE TO MDA FOR 15 OR MORE DAYS A YEAR, OR WHO SHOWS SIGNS OF DERMAL EXPOSURE (STAINED SKIN) MUST SEE A DOCTOR FOR MEDICAL SURVEILLANCE.

NOTE: ANY CLOTHING THAT HAS BEEN CONTAMINATED WITH MDA MUST BE LAUNDERED BEFORE IT IS WORN AGAIN. DESTROY CONTAMINATED LEATHER AND ABSORBENT SHOES. WORK CLOTHING CANNOT BE TAKEN HOME.

SPECIAL ENGINEERING REQUIREMENTS: CONSULT THE OSHA' STANDARD 29 CFR PARTS 1910 AND 1926 (OCCUPATIONAL EXPOSURE TO 4,4' METHYLENEDIANILINE) FOR MORE INFORMATION ON WHETHER OTHER ENGINEERING CONTROLS ARE NEEDED.

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SINCE THIS PRODUCT IS COMBUSTIBLE, BE SURE TO ISOLATE, VENT, DRAIN, WASH AND PURGE EQUIPMENT (SYSTEMS) BEFORE MAINTENANCE OR REPAIR. REMOVE ALL IGNITION SOURCES. CHECK ATMOSPHERE FOR EXPLOSIVENESS AND OXYGEN DEFICIENCIES.

SECTION IX. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION ON COMPONENTS OF THIS PRODUCT ARE AS FOLLOWS:

4,4' METHYLENEDIANILINE (MDA) HAS AN ORAL LD50 OF 250-347 MG/KG (RAT) AND 264 MG/KG (MOUSE). THIS MATERIALS HARMFUL IF ABSORBED THROUGH THE SKIN. REPEATED DERMAL EXPOSURE TO MDA MAY CAUSE ALLERGIC SKIN REACTIONS AND LIVER DAMAGE. MDA CAUSED LIVER TUMORS IN MICE AND THYROID CANCER IN RATS AND MICE DURING LABORATORY TEST.

STYRENE HAS AN ORAL LD50 (RAT) OF 5000 MG/KG. IF STYRENE LIQUID IS ASPIRATED INTO THE LUNGS, IT MAY BE RAPIDLY ABSORBED THROUGH THE LUNGS AND CAUSE INJURY TO OTHER BODY SYSTEMS. STYRENE IS REPORTED TO CAUSE HEARING LOSS IN LABORATORY ANIMALS UPON EXPOSURE TO HIGH CONCENTRATIONS (16 TIMES THE TLV). THE RELEVANCE OF THIS TO HUMANS IS UNKNOWN. CHRONIC OVEREXPOSURE TO STYRENE MAY CAUSE CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEY EFFECTS AND RESPIRATORY OR EYE IRRITATION.

BENZYL ALCOHOL HAS AN ORAL LD50 (RAT) OF 1230 MG/KG. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN. INHALATION OF VAPORS MAY CAUSE HEADACHE, VERTIGO, NAUSEA, AND VOMITING. CENTRAL NERVOUS SYSTEM DEPRESSION MAY ALSO OCCUR.

**SECTION X. REGULATORY INFORMATION**

NOTICE: REGULATORY REQUIREMENTS ARE SUBJECT TO CHANGE AND MAY DIFFER FROM ONE LOCATION TO ANOTHER. IT IS THE BUYER'S RESPONSIBILITY TO ENSURE THAT HIS ACTIVITIES COMPLY WITH FEDERAL, STATE AND LOCAL LAWS. THE FOLLOWING INFORMATION IS MADE FOR THE PURPOSE OF COMPLYING WITH NUMEROUS FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS. **THIS INFORMATION IS NOT MEANT TO BE ALL-INCLUSIVE. SELECTED REGULATIONS ARE PRESENTED** ALL THE COMPONENTS IN THIS PRODUCT ARE LISTED IN THE TSCA INVENTORY.

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SARA 313 INFORMATION: THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 ADN 40 CFR PAR 372.

4,4' METHYLENEDIANILINE (MDA)  
STYRENE MONOMER

CALIFORNIA PROPOSITION 65: THE FOLLOWING CHEMICALS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM.

4,4' METHYLENEDIANILINE (MDA)

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE IF THEY ARE APPROPRIATE.