



## MATERIAL SAFETY DATA SHEET

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BUEHLER EPOXICURE HARDENER

IDENTIFICATION NUMBER: 20-8132-008 and 20-8132-032

PRODUCT USE/CLASS: Epoxy hardener

SUPPLIER:

BUEHLER, a division of Illinois Tool Works Inc.

41 WAUKEGAN ROAD

LAKE BLUFF, IL 60044

EMERGENCY: 800-424-9300

INFORMATION: 847-295-6500

PREPARER: Technical Department, 847-295-6500

PREPARE DATE: 5/30/2012, 30 May 2012

### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

| ITEM | CHEMICAL NAME                  | CAS NUMBER | WT/WT%  |
|------|--------------------------------|------------|---------|
| 01   | Alkyl ether amine              | 39423-51-3 | 20 - 50 |
| 02   | Diethylenetriamine             | 111-40-0   | 10 - 20 |
| 03   | Triethylenetetramine           | 112-24-3   | 20 - 50 |
| 04   | Polyethyleneamine epoxy adduct | unknown    | 20 - 50 |

## SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

| ITEM | ACGIH TLV-TWA | ACGIH TLV-STEL | OSHA PEL-TWA | OSHA PEL – CEILING | COMPANY TLV-TWA | SKIN |
|------|---------------|----------------|--------------|--------------------|-----------------|------|
| 01   | N.E.          | N.E.           | N.E.         | N.E.               | N.E.            | NO   |
| 02   | 1 ppm         | N.E.           | 1 ppm        | N.E.               | 1ppm NIOSH      | YES  |
| 03   | N.E.          | N.E.           | N.E.         | N.E.               | N.E.            | NO   |
| 04   | N.E.          | N.E.           | N.E.         | N.E.               | N.E.            | NO   |

(SEE SECTION 16 FOR ABBREVIATION LEGEND)

## SECTION 3 – HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** DANGER! Can burn skin and eyes. Vapors are irritating to the eyes and respiratory tract. May cause allergic skin or respiratory reaction. May be absorbed through skin in harmful amounts. Toxic if swallowed. Can cause severe respiratory irritation. May cause harm to the aquatic environment.

**ACUTE EFFECTS – EYE CONTACT:** CORROSIVE to the eyes and may cause severe damage including blindness. Product vapor can cause lacrimation, conjunctivitis, and corneal edema when absorbed into the tissue of the eye. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effect.

**ACUTE EFFECTS - SKIN CONTACT:** May be absorbed through the skin in harmful amounts. Strong skin sensitizer. CORROSIVE. Contact may cause chemical burns and blistering.

**ACUTE EFFECTS – INHALATION:** Liquid aspirated into lungs may cause serious injury or death. Potential respiratory sensitizer. Prolonged or very high overexposure may cause burns to the mucous membranes with severe pneumonitis.

**ACUTE EFFECTS - INGESTION:** Moderately toxic. Can burn mouth, throat and stomach, with nausea, severe pain, and vomiting.

**CHRONIC OVEREXPOSURE/OTHER INFORMATION:**

\*Diethylenetriamine - studies suggest that chronic overexposure and/or systemic toxicity effects are targeted at the liver and kidneys.

Polyoxypropylene triamine - Animal studies suggest this product could cause damage to target organs.

**OTHER INFORMATION:** No information.

**PRIMARY ROUTE(S) OF ENTRY:** SKIN CONTACT, SKIN ABSORPTION, INHALATION, INGESTION, EYE CONTACT

## SECTION 4 – FIRST AID MEASURES

EYE CONTACT: Flush eye with water for 15 minutes. Remove contacts. Get immediate medical attention.

SKIN CONTACT: Immediately flush skin with plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. Dispose of contaminated leather articles in accordance with regulations.

INHALATION: INHALATION: If symptoms occur, remove to fresh air. Medical personnel may administer oxygen if breathing is difficult. Seek medical attention if symptoms persist.

INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN: Treat symptomatically.

## SECTION 5 – FIRE FIGHTING MEASURES

FLASH POINT: 100 C

LOWER EXPLOSIVE LIMIT: N.A.

UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE: No data

EXTINGUISHING MEDIA: ALCOHOL FOAM, CO<sub>2</sub>, DRY CHEMICAL, FOAM, WATER FOG

UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers may rupture or explode (due to pressure build-up) when exposed to extreme heat. Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion.

SPECIAL FIREFIGHTING PROCEDURES: Use NIOSH-approved self-contained breathing apparatus and full protective clothing. Use water to cool exposed containers. Water stream directed into fire may cause frothing with subsequent spread of flame.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Mark area and keep unnecessary personnel away from spill area. Reclaim clean material. Absorb with inert material, such as clay. Sweep or shovel into loosely-covered waste container and remove to appropriate waste area. Dispose of in accordance with federal, state, and local regulations. Wash spill area with detergent solution or wipe with alcohol-soaked rags. Dispose of all washings and contaminated items in accordance with waste regulations.

## SECTION 7 – HANDLING AND STORAGE

**HANDLING:** Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Contaminated leather articles should be disposed of. If product is heated, process with local ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. DO NOT reuse empty container without commercial clean or recondition. FOR INDUSTRIAL USE ONLY.

**STORAGE:** Store indoors in a cool dry place under ambient conditions. Keep container closed when not in use.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Local exhaust as needed to control vapor or dust levels to below lowest component TLV.

**RESPIRATORY PROTECTION:** If TLV/PEL is exceeded, if use is performed in a poorly-ventilated space, or if inhalation effects occur, use approved vapor cartridge respirator in accordance with applicable health and safety regulations and manufacturer's recommendations.

**SKIN PROTECTION:** Butyl rubber gloves. Nitrile gloves. Supported PVA gloves.

**EYE PROTECTION:** Chemical splash goggles. Face shield.

**OTHER PROTECTIVE EQUIPMENT:** Accessible eye wash and safety shower.

**HYGIENIC PRACTICES:** Follow good general industrial safety practices during use. Do not smoke or eat during use. Wash after handling. DO NOT reuse empty containers. Follow all MSDS/label precautions even after container is emptied.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

|   |                    |                          |                              |
|---|--------------------|--------------------------|------------------------------|
| <b>BOILING RANGE:</b>                         | 278 - 404 F        | <b>VAPOR DENSITY:</b>    | Is heavier than air          |
| <b>ODOR:</b>                                  | Ammoniacal acrid   | <b>ODOR THRESHOLD:</b>   | No data                      |
| <b>APPEARANCE:</b>                            | Clear Light Yellow | <b>EVAPORATION RATE:</b> | Is slower than Butyl Acetate |
| <b>SOLUBILITY IN H<sub>2</sub>O:</b>          | Appreciable        |                          |                              |
| <b>FREEZE POINT:</b>                          | No data            | <b>SPECIFIC GRAVITY:</b> | 1.031                        |
| <b>VAPOR PRESSURE:</b>                        | No data            | <b>pH @ 0.0%:</b>        | ALK                          |
| <b>PHYSICAL STATE:</b>                        | Liquid             | <b>VISCOSITY:</b>        | Low                          |
| <b>COEFFICIENT OF WATER/OIL DISTRIBUTION:</b> | No data            |                          |                              |

(SEE SECTION 16 FOR ABBREVIATION LEGEND)

## SECTION 10 – STABILITY AND REACTIVITY

CONDITIONS TO AVOID: No information.

INCOMPATIBILITY: Strong bases or oxidants. Strong Lewis or mineral acids. N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon. Toxic nitrogenous oxides.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal conditions.

## SECTION 11 – TOXICOLOGICAL PROPERTIES

----- CHEMICAL NAME----- TEST DATA

Triethylenetetramine..... Oral LD50 RAT = 2500 mg/kg

Dermal LD50 RABBIT = 550 mg/kg

Diethylenetriamine..... Oral LD50 RAT = 1080 mg/kg

Dermal LD50 RABBIT = 1090 mg/kg

Alkyl ether amine..... Dermal LD50 (Rabbit) = 562 mg/kg

Oral LD50 (rat) = 220 mg/kg

Polyethyleneamine epoxy adduct ..... No Information

### ACUTE EFFECTS – EYE:

CORROSIVE. Can cause eye burns and permanent tissue damage.

Product vapor can cause lacrimation, conjunctivitis, and corneal edema when absorbed into the tissue of the eye.

Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effects.

### ACUTE EFFECTS – SKIN:

CORROSIVE. Contact may cause chemical burns and blistering. May be absorbed through skin in toxic amounts. Strong skin sensitizer with allergic reactions.

### ACUTE EFFECTS – INHALATION:

Can cause severe respiratory irritation. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Potential respiratory sensitizer.

## SECTION 11 – TOXICOLOGICAL PROPERTIES

### ACUTE EFFECTS – INGESTION:

CORROSIVE; may cause severe and permanent damage to mouth, throat, and stomach. Moderately toxic.

### CHRONIC OVEREXPOSURE/OTHER INFORMATION:

\*Diethylenetriamine - studies suggest that chronic overexposure and/or systemic toxicity effects are targeted at the liver and kidneys.

Polyoxypropylene triamine - Animal studies suggest this product could cause damage to target organs.

## SECTION 12 – ECOLOGICAL INFORMATION

### COMPONENT ECOLOGICAL INFORMATION:

----- CHEMICAL NAME----- TEST DATA -

Triethylenetetramine..... No Information

Diethylenetriamine..... Guppy LC50 96 hr = 1014 mg/l

Alkyl ether amine..... Acute LC50-fish-96 hours = > 100 mg/L

Polyethyleneamine epoxy adduct ..... No Information

### SUMMARY OF ECOLOGICAL INFORMATION:

BIOACCUMULATION POTENTIAL: No information indicating bioaccumulation.

PERSISTENCE AND DEGRADABILITY: No information indicating persistence or degradability.

AQUATIC TOXICITY: H412 Harmful to aquatic life with long lasting effects.

## SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Review all current federal, state, and local regulations regarding health and disposal for appropriate disposal procedures. For small amounts, mix resin and hardener according to product directions and allow to harden. When cured, product is non-hazardous, and may be placed in industrial or municipal landfill if local regulations permit. Material "as sold" is not regulated as a hazardous waste under federal RCRA regulations.

DO NOT landfill free liquid. Fuels blending or incineration of free liquid recommended if permitted.

## SECTION 14 – TRANSPORTATION INFORMATION

|   |                              |
|---|------------------------------|
| DOT PROPER SHIPPING NAME: Polyamines, Liquid, Corrosive, nos (Aliphatic amine blend)            |                              |
| DOT TECHNICAL NAME: (Diethylenetriamine, Triethylenetetramine)                                  |                              |
| DOT HAZARD CLASS: 8, CORROSIVE  | HAZARD SUBCLASS: N.A.        |
| DOT UN/NA CLASS: UN2735   | PACKAGING GROUP: II          |
|   | RESP. GUIDE PAGE: 153        |
| INTERNATIONAL SHIPPING NAME: Polyamines, liquid, nos (Diethylenetriamine, Triethylenetetramine) |                              |
| INTERNATIONAL ID NUMBER: UN2735   |                              |
| IMDG CLASS (1°, 2°): 8, none  | IMDG PAGE NUMBER: II         |
| IMDG EMS: 808   | IATA CLASS (1°, 2°): 8, none |

## SECTION 15 – REGULATORY INFORMATION

|   |
|---|
| <p><u>OSHA</u>: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)</p> <p><u>CERCLA – SARA HAZARD CATEGORY</u>: THIS PRODUCT HAS BEEN REVIEWED, AND IS CONSIDERED, UNDER APPLICABLE DEFINITIONS, TO MEET THE FOLLOWING CATEGORIES: none</p> <p><u>SARA SECTION 313</u>: THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 AND 40 CFR PART 372: IMMEDIATE HEALTH HAZARD CHRONIC HEALTH HAZARD</p> <p><u>CALIFORNIA PROPOSTION 65</u>: No Proposition 65 chemicals known to exist in this product.</p> <p><u>CANADIAN WHMIS</u>: THIS MSDS HAS BEEN PREPARED IN COMPLIANCE WITH CONTROLLED PRODUCT REGULATIONS EXCEPT FOR USE OF THE 16 HEADINGS.</p> <p><u>CANADIAN WHMIS CLASS</u>: D2A, E</p> <p><u>COMPONENT RCRA CLASSIFICATIONS</u>: Not regulated</p> <p><u>COMPONENT RCRA CODES</u>: No information.</p> <p><u>CERCLA RQ VALUE (MINIMUM)</u>: None known</p> |
|---|

## SECTION 16 – OTHER INFORMATION

### HMIS RATINGS

HEALTH: 3

FLAMMABILITY: 1

REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 3/23/2009, 23 March 2009

REASON FOR REVISION: Administrative change for new format. Revised sections 2, 3, 7, 11, & 12

VOLATILE ORGANIC COMPOUNDS: 0 grams/ltr

### LEGEND:

N.A. – NO INFORMATION

N.E. – NOT ESTABLISHED

N.D. – NOT DETERMINED

ABBREVIATIONS: ACGIH = AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS; OSHA = OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION; TLV-TWA = THRESHOLD LIMIT VALUE – TIME WEIGHTED AVERAGE (8 HOURS); STEL = SHORT-TERM EXPOSURE LIMIT (15 MINUTES); C = CEILING VALUE; PEL = PERMISSIBLE EXPOSURE LIMIT

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