



# MATERIAL SAFETY DATA SHEET

## SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

|  |  |  |  |
|--|--|--|--|
| <b>PRODUCT NAME:</b> THERMALBOND 4950 B  |  | <b>DATE:</b> February 12, 2009   |  |
| <b>PRODUCT NUMBER:</b>   |  | <b>DATE PREPARED:</b> February 12, 2009  |  |
| TRADE NAME: THERMALBOND 4950 B<br>GENERAL USE: EPOXY HARDENER<br>PRODUCT DESCRIPTION:<br>Reference: Also sold as Circalok 6252 Green |  |  |  |
| <b>MANUFACTURER</b><br><b>AAVID Thermalloy, LLC</b>  |  |  |  |
| <b>ADDRESS (NUMBER, STREET, P.O. BOX)</b><br>80 Commercial Street  |  | <b>SUPERSEDES:</b> January 23, 2004  |  |
| <b>(CITY, STATE AND ZIP CODE)</b> CONCORD, NH 03301  |  | <b>CHEMTEL 24-HOUR EMERGENCY TELEPHONE NUMBERS</b>                                 |  |
| <b>COUNTRY</b> USA   |  |   |  |
| <b>TELEPHONE NUMBER (General Inquiries)</b><br>(603) 224-9988  |  | 1-800-255-3924<br>North America<br>(Toll Free)                                     | 813-248-0585<br>International<br>and Local Calls |

## SECTION 2 - HAZARDOUS INGREDIENTS

| Hazardous Components     | % (by Weight) | CAS #       |
|--------------------------|---------------|-------------|
| Triethanolamine          | 10.0          | 102-71-6    |
| Piperazine               | 5.0           | 110-85-0    |
| Amine compound           | 5.0           | PROPRIETARY |
| Amine curing agent       | 5.0           | 31326-29-1  |
| Amine compound           | 4.5           | PROPRIETARY |
| Bisphenol A              | 5.0           | 80-05-7     |
| Polyoxypropylenedia mine | 5.0           | 9046-10-0   |

**NOTES:** This Material Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Canadian Workplace Hazardous Materials Information System (WHMIS), and European Union Directive 91/155/EEC. Hazard symbols and risk phrases are based on maximum listed concentration of each hazardous ingredient. Unlisted ingredients are not "hazardous" per the OSHA Hazard Communication Standard (29 CFR 1910.1200), the Canadian Workplace Hazardous Materials Information System (WHMIS) or the European (GHS) directive 91/155/EEC and are considered trade secrets under US Federal Law (29CFR and 40CFR), Canadian Law (Health Canada Legislation), and European Union Directive 67/548/EEC.

## SECTION 3 - HAZARDS IDENTIFICATION

|  |                           |                           |           |
|--|---------------------------|---------------------------|-----------|
| <b>EMERGENCY OVERVIEW</b>  |                           |                           |           |
| Amber Liquid, with Ammonia odor. Harmful if inhaled. Harmful if absorbed through skin. May cause skin and eye burns. May cause allergic skin reaction. May cause allergic respiratory reaction. Causes respiratory tract irritation.   |                           |                           |           |
| <b>POTENTIAL HEALTH EFFECTS</b>  |                           |                           |           |
| <b>INHALATION:</b>   |                           |                           |           |
| Possible irritation of the respiratory system can occur causing a variety of symptoms such as dryness of the throat, tightness of the chest, and shortness of breath. May cause headache and nausea. Vapors may cause irritation of nose, throat, and upper respiratory tract. Inhalation may cause temporary blurring of vision. May cause respiratory sensitization. May cause allergic respiratory reaction. May cause lung damage. |                           |                           |           |
| <b>SKIN:</b>   |                           |                           |           |
| May be absorbed through the skin in harmful amounts. May be corrosive to skin; contact may cause skin burns. May cause skin sensitization. May cause allergic skin reaction. May cause dermatitis.   |                           |                           |           |
| <b>EYES:</b>   |                           |                           |           |
| May be corrosive to eyes; contact may cause eye burns. Eye contact may cause severe eye damage, including vision disturbances, corneal damage, and blindness.  |                           |                           |           |
| <b>INGESTION:</b>  |                           |                           |           |
| Harmful if swallowed. Ingestion is not an expected route of entry in industrial or commercial uses.  |                           |                           |           |
| <b>CARCINOGENICITY:</b>  |                           |                           |           |
| NTP? <b>NO</b>   | ARC MONOGRAPHS? <b>NO</b> | OSHA REGULATED? <b>NO</b> |           |
| CALIFORNIA, Prop.65?   | <b>NO</b>                 | ESIS NOTATION?            | <b>NO</b> |

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## SECTION 4 - FIRST AID MEASURES

### INHALATION:

Move person to fresh air. Restore and support continued breathing. If breathing is difficult, give oxygen. Get immediate medical attention.

### EYES:

Flush eyes immediately with large amount of water for at least 15 minutes holding eyelids open while flushing. Get prompt medical attention.

### SKIN:

Flush contaminated skin with large amounts of water while removing contaminated clothing. Wash affected skin areas with soap and water. Get medical attention if symptoms occur.

### INGESTION:

If swallowed, do not induce vomiting. Give victim one or two glasses of water or milk. Call a physician or poison control center immediately for further instructions. Never give anything by mouth to an unconscious person.

## SECTION 5 - FIRE FIGHTING MEASURES

### GENERAL HAZARDS:

### EXTINGUISHING MEDIA:

Carbon Dioxide, Dry Chemical, Foam, Water Fog

### FIRE FIGHTING PROCEDURES:

Wear full firefighting protective clothing, including self-contained breathing apparatus (SCBA). If water is used, fog nozzles are preferable.

### UNUSUAL FIRE AND EXPLOSION HAZARDS:

Keep containers tightly closed. Closed containers may rupture when exposed to extreme heat. Use water spray to keep fire exposed containers cool. During a fire, irritating and/or toxic gases and particulate may be generated by thermal decomposition or combustion.

### HAZARDOUS COMBUSTION PRODUCTS:

Carbon and Nitrogen Oxides

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Keep non-essential personnel a safe distance away from the spill area. Avoid breathing vapors. Use self-contained breathing equipment. Notify appropriate authorities if necessary. Avoid contact. Before attempting cleanup, refer to hazard caution information in other sections of the MSDS form. Scoop spilled material into an appropriate container for proper disposal. (If necessary, use inert absorbent material to aid in containing the spill).

## SECTION 7 - HANDLING AND STORAGE

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

**HANDLING:** Keep closure tight and container upright to prevent leakage. Avoid skin and eye contact. Wash thoroughly after handling. Avoid breathing of vapor or spray mists. Do not handle until all safety precautions have been read and understood. Empty containers should not be re-used. Use with adequate ventilation.

**STORAGE:** Store only in well-ventilated areas. Keep container closed when not in use.

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## SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

| HAZARDOUS COMPONENTS     | NIOSH   |           |          |            | ACGIH       |           | OSHA     |            | Skin |
|--------------------------|---------|-----------|----------|------------|-------------|-----------|----------|------------|------|
|                          | TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 | TLV/TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 |      |
| Triethanolamine          | NE      | NE        | NE       | NE         | NE          | 5         | NE       | NE         | NA   |
| Piperazine               | NE      | NE        | NE       | NE         | NE          | NE        | NE       | NE         | NA   |
| Amine compound           | NE      | NE        | NE       | NE         | 1           | NE        | NE       | NE         | S    |
| Amine curing agent       | NE      | NE        | NE       | NE         | NE          | NE        | NE       | NE         | NA   |
| Amine compound           | NE      | NE        | NE       | NE         | NE          | NE        | NE       | NE         | NA   |
| Bisphenol A              | NE      | NE        | NE       | NE         | NE          | NE        | NE       | NE         | NA   |
| Polyoxypropylenedia mine | NE      | NE        | NE       | NE         | NE          | NE        | NE       | NE         | NA   |

NA - Not Applicable, NE - Not Established, S - Skin Designation

## PERSONAL PROTECTION

### RESPIRATORY PROTECTION:

Use a NIOSH approved air-purifying organic vapor respirator if occupational limits are exceeded. For emergency situations, confined space use, or other conditions where exposure limits may be greatly exceeded, use an approved air-supplied respirator. Observe OSHA regulations (29CFR 1910.134) for respirator use.

### PROTECTIVE GLOVES:

Use neoprene, nitrile, or rubber gloves to prevent skin contact.

### EYE PROTECTION:

Use safety eyewear including safety glasses with side shields and chemical goggles where splashing may occur.

### OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

Remove and wash contaminated clothing before reuse. Rubber aprons are suggested.

### WORK / HYGIENIC PRACTICES:

Wash hands before eating, smoking, or using toilet facility. Food or beverages should not be consumed anywhere this product is handled or stored. Wash thoroughly after handling.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

|  |  |
|--|--|
| APPEARANCE AND ODOR<br><b>Amber liquid, Ammonia odor</b>                         | VAPOR PRESSURE<br><b>ND</b>                        |
| pH<br><b>NA</b>  | DENSITY (LB/GL):<br><b>8.2059 lb/gal</b>           |
| BOILING RANGE:<br><b>290 °F - 680 °F</b>   | SOLUBILITY IN WATER<br><b>Insoluble</b>            |
| FLASH POINT<br><b>201 °F, 93 °C Setaflash Closed Cup</b>                         | VISCOSITY<br><b>ND</b>                             |
| FLAMMABLE LIMITS<br>LEL: <b>NA</b> UEL: <b>NA</b>                                | VAPOR DENSITY (AIR = 1)<br><b>Heavier than Air</b> |
| AUTOIGNITION TEMPERATURE:<br><b>ND</b>   | EVAPORATION RATE (WATER = 1)<br><b>ND</b>          |
| VOLATILE BY WEIGHT:  | VOLATILE BY VOLUME: <b>0.0%</b>                    |
| VOLATILE ORGANIC COMPOUND (VOC) INFORMATION (Calculated): <b>0 lb/gal, 0 g/l</b> |  |

NOTES: See section 16 for abbreviation legend

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## SECTION 10 - STABILITY AND REACTIVITY

**STABILITY:** STABLE **X** **CONDITIONS TO AVOID:**  
 High temperatures.

**INCOMPATIBILITY (MATERIALS TO AVOID):**  
**Strong acids, bases, and strong oxidizers.**

**HAZARDOUS DECOMPOSITION OR BYPRODUCTS:**  
**Carbon Monoxide, Carbon Dioxide, organic or inorganic nitrogen compounds including traces of hydrogen cyanide.**

**HAZARDOUS POLYMERIZATION:** Hazardous polymerization will not occur under normal conditions. **CONDITIONS TO AVOID:**  
 None Related to Polymerization.

## SECTION 11 - TOXICOLOGICAL INFORMATION

| Hazardous Components     | CAS #<br>EINECS # | LD50 of Ingredient<br>(Specify Species and Route) | LC50 of Ingredient<br>(Specify Species)                |
|--------------------------|-------------------|---|--|
| Triethanolamine          | 102-71-6          | 4.92 mg/kg (oral, rat)                            | NR   |
| Piperazine               | 110-85-0          | 600 mg/kg (oral, rat)                             | 5,400 mg/m <sup>3</sup> /2 hour<br>(Inhalation, mouse) |
| Amine compound           | PROPRIETARY       | NR  | NR   |
| Amine curing agent       | 31326-29-1        | NR  | NR   |
| Amine compound           | PROPRIETARY       | NR  | NR   |
| Bisphenol A              | 80-05-7           | 1,200 mg/kg (oral, rat)                           | 1,700 mg/m <sup>3</sup> /2 hour<br>(Inhalation, mouse) |
| Polyoxypropylenedia mine | 9046-10-0         | 2,880 mg/kg (oral, rat)                           | NR   |

## SECTION 12 - ECOLOGICAL INFORMATION

No information regarding ecological toxicity is known for this substance. It is highly advisable not to release material into sewage systems or bodies of water.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:**  
 Disposal should be done in accordance with Federal (40CFR Part 261), state and local environmental control regulations. If waste is determined to be hazardous, use licensed hazardous waste transporter and disposal facility. It is the user's responsibility to follow all applicable rules and regulations regarding disposal of waste products.

## SECTION 14 - TRANSPORT INFORMATION

**PROPER SHIPPING NAME:** Amines, liquid, corrosive, n.o.s, UN 2735

|   |  |
|---|--|
| DOT HAZARD CLASS / Pack Group: <b>8 / PG III</b><br>UN / NA IDENTIFICATION NUMBER: <b>2735</b><br>LABEL: <b>Corrosive</b> | IATA HAZARD CLASS / Pack Group: <b>8 / III</b><br>IMDG HAZARD CLASS: <b>8</b><br>UN TDG Class / Pack Group: <b>III</b> |
|---|--|

**HAZARD SYMBOLS:**

The listed transportation classification applies to non-bulk road shipments. It does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors. For the most accurate shipping information, refer to your transportation/compliance department.

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

