

MATERIAL SAFETY DATA SHEET



Product Name: **Bondline 2948**
Chemical Name: Epoxy-Silver
Preparation Date: 10/1/1999
Revision Date: 2/4/2004
Revision: B

Section 1: Identification

Bondline Electronic Adhesives
756 N. Pastoria Avenue
Sunnyvale, CA. 94085
Telephone: 408-830-9200 Fax: 408-830-9266
Web: www.bondline.net

Section 2: Hazardous Ingredients & Section 313 Supplier Notification

| <u>Hazardous Material</u> | <u>Cas Number</u> | <u>%</u> | <u>TLV per ACGIH^{1,3}</u> | <u>Exposure Limit PEL^{2,3}</u> | <u>Codes</u> |
|-------------------------------------|-------------------|--------------|------------------------------------|---|--------------|
| Silver* | 7440-22-4 | >60.0 | .1mg/m ³ | .01mg/m ³ | H |
| Bisphenol A/Epichlorohydrin Epoxy** | 25068-38-6 | Trade secret | N/A | N/A | H |

*Silver is not hazardous after it has been blended into epoxy resin. If the Cured adhesive is to be dry sanded or ground, follow recommendations follow recommendations in section VIII under such circumstances. Wet sanding is recommended to eliminate airborne silver.

** Manufacturer states that this product is an epoxy resin produced by the condensation reaction of Epichlorohydrin and Bisphenol A. These materials are consumed in the process. Residual levels of Epichlorohydrin are controlled to 1ppm max., in the product.

Hazard Codes

C = Carcinogen (OSHA,NTP,IARC)

H= Hazardous (OSHA)

P= California Prop 65 (Carcinogen)

A= Superfund Amendments Reauthorization Act(SARA)

1= TLV means threshold limit values.

2= PEL means Permitted exposure limit set fourth by OSHA.

3= All exposure limits in mg/m3 values for airborne dust.

a= mmpcf million particles per cubic foot of air.

b= respirable.

ACGIH= The American Conference of Governmental Industrial Hygienists

TWA= TWA means 8 hour time weighted average.

Section 3: Physical Data

| | |
|--------------------------------|--------------|
| Boiling point | N/A |
| Vapor pressure @ 25°C | N/A |
| Vapor density (Air = 1) | >1 |
| Solubility in H ² O | Insoluble |
| Appearance | Silver paste |
| Specific gravity | 4.0 |
| % Volatile by weight | N/A |
| Evaporation rate | N/A |
| Odor | Slight |

Section 4: Fire and Explosion Hazard Data

| | |
|---------------------------------|--|
| Flash point | Not Tested |
| Flammable Limits in Air | Not Tested |
| Extinguishing media | Carbon dioxide, dry chem, foam, water fog |
| Unusual fire & Explosion Hazd. | Toxic fumes may be evolved upon exposure to heat or open flame. Exothermic reaction can occur in large masses. |
| Special fire fighting procedure | Self contained breathing apparatus and protective clothing should be worn. |

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Section 5: Health and Hazard Information

Effects of overexposure

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|--------------|--|
| Inhalation | May be harmful if inhaled. Can cause irritation to the nose, throat and respiratory tract, and nausea. |
| Eye contact | Can cause severe irritation to the eyes. |
| Skin Contact | Irritation upon direct contact. Prolonged exposure may result in skin sensitization. Wash skin thoroughly with soap and water. |

First aid & Emergency procedure

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|------------------------|--|
| Eye contact | Flush with water for at least 15 minutes, can cause severe irritation to the eyes. Seek medical attention. |
| Skin contact | Wash immediately with soap and water |
| Inhaled | Remove to fresh air immediately. |
| Ingestion | Seek medical attention immediately and show MSDS. |
| Suspected cancer agent | Product is not considered to be carcinogenic. |

Section 6: Reactivity Data

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|--|---|
| Stability | Stable when stored at -40°C or colder. Will harden at room temperature. |
| Incompatibility (materials to avoid) | Strong oxidizing agents |
| Conditions to avoid | Excessive heat or flames |
| Haz. decomposition products | Carbon monoxide, acids, aldehydes |
| Hazardous polymerization | May occur |

Section 7: Spill, leak and disposal procedures

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| Spill or leak | Use paper towels to wipe up epoxy. Epoxy will harden at room temperature. |
| Waste disposal method | Cure epoxy at elevated temperature. (see data sheet) Can be disposed in land fill. |

Section 8: Special protection information

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|------------------------|---|
| Ventilation | Local exhaust is preferred. Use material in a well ventilated work area. |
| Eye protection | Safety goggles. |
| Gloves | Rubber gloves or finger cottles. |
| Respiratory protection | Use NIOSH approved dust mask, or NIOSH approved organic respirator if needed. |
| Curing ovens | vent to outdoors |

Section 9: Special precautions

| | |
|----------------------|--|
| Storage and handling | Refrigerated storage at -40°C or colder is required. |
| Shelf life | 1 year when stored at -40°C or colder. |

Section 10: Regulatory Information

SARA/TITLE III-Toxic Chemicals List: This product contains chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 part 372.

| <u>Cas Number</u> | <u>%</u> |
|-------------------|--------------|
| 7440-22-4 | >60.0 Silver |

TSCA Inventory Status: Chemical components listed on TSCA Inventory

California Prop. 65: This product does contain toxic chemicals currently on the California list of known carcinogens and reproductive toxins.
<0.5 ppm

Disclaimer: All statements, technical information and recommendations contained herein are based on tests we believe to be accurate, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of warranty express or implied. Seller and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising from use or inability to use the project. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.
