

MATERIAL SAFETY DATA SHEET



Product Name: **Bondline 2121**
Chemical Name: Epoxy-Silver
Preparation Date: 10/22/1999
Revision Date: 1/15/2004
Revision: C

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
Diethylenetriamine	114-40-0	<2.0	1ppm	not determined	H
N-Butyl Glycidyl	2426-08-6	<5	25ppm	25ppm	H
Bisphenol A/Epichlorohydrin Epoxy**	25068-38-6	<50.0	N/A	N/A	
Polyamide resin	68410231	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	2.70
% 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

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

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

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

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

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	6 months 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.
