

IDH# 1200015



*** MATERIAL SAFETY DATA SHEET ***

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ABLEBOND® 84-1LMIT
 COMPANY ADDRESS: Henkel Electronic Materials LLC
 14000 Jamboree Road
 Irvine, CA 92606

EMERGENCY CONTACT NUMBERS:
 MEDICAL: 1-877-671-4608 (toll free) or 1-303-592-1711
 (24 hours - Poison Control Center)
 TRANSPORT: CHEMTREC: 1-800-424-9300 (24 hours)
 CHEMTREC International: 1-703-527-3887 (call collect)
 Contact Information: 1-888-9-HENKEL (1-888-943-6535)
 Internet: www.henkel.com/electronics

SYNONYMS: Silver-filled resin adhesive

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING.
 SEVERE EYE IRRITANT.
 Suspected of causing genetic defects.
 HARMFUL IF SWALLOWED.
 SEVERE SKIN IRRITANT.
 SKIN SENSITIZER.
 Silver Paste

EYE: Severe/very severe irritant.
 SKIN CONTACT: Repeated or prolonged skin contact may result in severe irritation. Repeated and/or prolonged contact may cause skin sensitization. May be absorbed through the skin.
 INHALATION: Irritating and/or toxic vapors may be released at elevated temperatures. Vapor may be irritant to the respiratory tract.
 INGESTION: Ingestion may cause irritation of the gastrointestinal tract. May cause nausea, vomiting and diarrhea.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	CONCENTRATION (% by weight)
Silver	7440-22-4	>50
Epoxy resin (Trade Secret - 10030)	TS ref# 10030	5 - 10
Epoxy resin (Trade Secret - 10114)	TS ref# 10114	1 - 5
Epoxy resin modifier (Trade Secret - 10038)	TS ref# 10038	1 - 5
Amine (Trade Secret - 10039)	TS ref# 10039	1 - 5

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4. FIRST-AID MEASURES

EYE	Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.
SKIN CONTACT	Wash skin with water. If symptoms (irritation or blistering) persist obtain medical attention.
INHALATION	Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention.
INGESTION	DO NOT attempt to give anything by mouth to an unconscious person. Treat symptomatically and supportively. Get medical attention.

5. FIREFIGHTING MEASURES

AUTOIGNITION	Not available
FLASH POINT	Not available
EXTINGUISHING MEDIA	CO ₂ ; Dry Chemical; Foam
SPECIAL FIREFIGHTING PROCEDURES	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.; Cool exposed equipment with water spray.
FIRE & EXPLOSION HAZARDS	Combustible at high temperatures. Polymerization may take place at elevated temperatures.
HAZARDOUS COMBUSTION PRODUCTS	Carbon dioxide, carbon monoxide, oxides of nitrogen and unknown organics.
LOWER EXPLOSION LIMIT (%)	Not applicable
UPPER EXPLOSION LIMIT (%)	Not applicable

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES	May cause allergic skin reaction. Use suitable protective clothing. Scrape up and place in suitably labeled container for silver recovery. If recovery is not practical, disposal should be in accordance with approved site procedures.
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For safety and environmental precautions, please review entire Material Safety Data Sheet for necessary information.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE	-40 °C
HANDLING/STORAGE	Keep material refrigerated at the storage temperature referenced above. Keep in original containers until point of use. Product can ONLY be used for thin bond line applications or rapid exothermic curing reaction may result. Empty containers may contain product residue;follow MSDS and label warnings even after they have been emptied.
SENSITIVITY TO STATIC ELECTRICITY	No
SPECIAL SENSITIVITY	Heat.
SENSITIVITY TO MECHANICAL IMPACT	No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	EXPOSURE LIMITS		
	<u>ACGIH</u>	<u>OSHA</u>	<u>Mfg Working Standard</u>
Silver	0.1 mg/m ³ TWA (dust and fume).	0.01 mg/m ³ TWA	

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CALIFORNIA OSHA

COMPONENT

Silver

EXPOSURE LIMITS

0.01 mg/m3 PEL

VENTILATION REQUIREMENTS	Vent curing oven to outdoors.
EYE PROTECTION REQUIREMENTS	Wear safety glasses with side shields.
GLOVE REQUIREMENTS	Employee must wear appropriate protective gloves to prevent contact with this substance. The use of chemically resistant gloves is recommended.
CLOTHING REQUIREMENTS	Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.
CHANGE/REMOVAL OF CLOTHING	Remove contaminated clothing and laundry before reuse. Discard shoes, belts, wallets, and any other contaminated leather items.
WASH REQUIREMENTS	Wash before eating, drinking, or using toilet facilities.
RESPIRATOR REQUIREMENTS	NIOSH approved respirator if required. Self-contained breathing apparatus in emergency and non-routine situations.

9. PHYSICAL AND CHEMICAL PROPERTIES

PURE SUBSTANCE OR MIXTURE	Mixture
PHYSICAL FORM	Paste
COLOR	Silver
ODOR THRESHOLD	Not available
PH AS IS	Not available
OXIDIZING PROPERTIES	Not applicable
SOLUBILITY IN WATER	Insoluble
PARTITION COEFFICIENT (n-octanol/water)	Not applicable
SPECIFIC GRAVITY (WATER=1)	4.1
EVAPORATION RATE	Not available
VAPOR PRESSURE (mmHg)	Not applicable
VAPOR DENSITY (air = 1)	Not applicable
VOLATILES	Not available
VOLATILE ORGANIC COMPOUNDS	Not available
AUTOIGNITION	Not available
FLASH POINT	Not available

10. STABILITY AND REACTIVITY

STABILITY	Stable
STABILITY DETAIL	Material is stable under recommended storage temperatures and pressures.
MATERIALS TO AVOID	Amines
CONDITIONS TO AVOID	Elevated temperatures
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon dioxide, carbon monoxide, oxides of nitrogen and unknown organics. Thermal decomposition products are hazardous and/or toxic.
HAZARDOUS POLYMERIZATION CONDITIONS	Hazardous polymerization may occur.

11. TOXICOLOGICAL INFORMATION

ROUTE OF ENTRY Skin Contact; Skin Absorption; Inhalation; Eye Contact

CARCINOGEN

IARC
(group)

NTP

OSHA Substance
Specific Regulation

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COMPONENT

There is no evidence that this product poses a carcinogenic risk under normal conditions of handling and use.

CHRONIC (LONG TERM) EFFECTS OF EXPOSURE
EFFECTS OF CHRONIC EXPOSURE

The toxicological properties of this product have not been fully evaluated. Use of good industrial hygiene practices is required. Avoid direct contact with skin or eyes. Do not ingest or inhale.
Skin
Sensitizer. May cause allergic reaction.

TARGET ORGANS
SKIN SENSITIZATION

PRODUCT TOXICOLOGY
PRODUCT INFORMATION

This data sheet is based on a consideration of the properties of the constituents.

EYE IRRITATION

Will cause eye irritation. Irritating to the skin. Vapor released during hot processing may be irritant to the respiratory system.

COMPONENT
Silver

ORAL TOXICITY

NOTES ON ORAL TOXICITY

Ingestion may cause irritation of the gastrointestinal tract. May cause argyria.

Epoxy resin (Trade Secret - 10030)
Epoxy resin modifier (Trade Secret - 10038)

Oral LD50: Rat > 2 g/kg

Ingestion may cause irritation of the gastrointestinal tract.

Oral LD50: Rat 1.4 g/kg

Will cause irritation to mouth, throat, and stomach. May cause nausea and vomiting.

Amine (Trade Secret - 10039)

Oral LD50: Rat 640 mg/kg
Oral LD50: Mouse 250 mg/kg

Moderately toxic.

COMPONENT
Silver

DERMAL TOXICITY

NOTES ON DERMAL TOXICITY

May cause slight irritation. May cause argyria. May be absorbed through the skin.

Epoxy resin (Trade Secret - 10030)

> 400 mg/kg

Repeated and/or prolonged contact may cause irritation and skin sensitization.

Epoxy resin modifier (Trade Secret - 10038)

Dermal LD50: Rabbit 1.1 g/kg

Irritating to the skin. Repeated and/or prolonged contact may cause skin sensitization.

Amine (Trade Secret - 10039)

Dermal LD50: Rabbit > 4000 mg/kg

Non-toxic.

COMPONENT
Silver

INHALATION TOXICITY

NOTES ON INHALATION TOXICITY

Dust may cause irritation. Acute inhalation exposure may result in metal fume fever, a temporary influenza-like illness. May cause argyria.

Epoxy resin (Trade Secret - 10030)

Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.

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Epoxy resin modifier (Trade Secret - 10038)	Unlikely to be hazardous by inhalation because of the low vapor pressure of the material at ambient temperature. Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.
Amine (Trade Secret - 10039)	Respiratory irritant.
COMPONENT Silver	NOTES ON EYE IRRITATION Particulates may scratch eye surfaces and cause mechanical irritation. May cause argyria.
Epoxy resin (Trade Secret - 10030)	Will cause eye irritation.
Epoxy resin modifier (Trade Secret - 10038)	Will cause eye irritation.
Amine (Trade Secret - 10039)	Will cause eye irritation.

12. ECOLOGICAL INFORMATION

POTENTIAL EFFECT ON ENVIRONMENT	Do not allow to enter drains, sewers or watercourses.
MOBILITY	Insoluble
POTENTIAL TO BIOACCUMULATE	Unknown.
AQUATIC TOXICITY	None Established

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS	Disposal should be in accordance with local, state or national legislation.
EMPTY CONTAINER WARNINGS	Empty containers may contain product residue; follow MSDS and label warnings even after they have been emptied.

14. TRANSPORTATION INFORMATION

This section provided for general information only. The shipping description below may not represent requirements for all modes of transportation, packaging, shipping methods or locations outside of the United States.

FOR MORE COMPLETE TRANSPORTATION REGULATORY INFORMATION PLEASE REFER TO THE SHIPPING DOCUMENTS ACCOMPANYING THE SHIPMENT OF THIS PRODUCT.

DOT CLASSIFICATION Not Regulated

The information provided herein may not include the impact of additional regulatory requirements (eg, for materials meeting the definition of a hazardous waste under RCRA, hazardous substances under CERCLA, and/of marine pollutants under CWA or other similar federal, state or local laws) or any associated exceptions or exemptions under regulations applicable to the transport of this material.

15. REGULATORY INFORMATION

TSCA	This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C. 2601 et. seq.
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SARA - Section 313 (Superfund Amendments and Reauthorization Act of 1986 - 40CFR 372) Silver	CAS NUMBER 7440-22-4
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CALIFORNIA PROPOSITION 65

WARNING: This product contains the following chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm.

Unless a concentration is specified in Section 2 of the MSDS, the below chemical/s are present in trace amounts.

COMPONENT Toluene	CAS NUMBER 108-88-3
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16. OTHER INFORMATION

HMIS® Hazard Ratings

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs by OSHA's 29 CFR 1910.1200, we choose to provide them as a service to our customers using HMIS®. These ratings are to be used only with a fully implemented HMIS® program. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

NPCA recommends that employers must determine appropriate PPE for the actual conditions under which this product is used in their workplace. For information on PPE codes, consult the HMIS® Implementation Manual.

When two ratings are provided for Health, the first represents the material 'as supplied', and the second represents the material 'in use'.

* = chronic health hazard

HMIS® is a registered trademark of the National Paint and Coatings Association (NPCA).

<u>Health</u>	<u>Flammability</u>	<u>Physical Hazard</u>
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PREPARED BY: Regulatory Affairs
Henkel Electronic Materials

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