

*** MATERIAL SAFETY DATA SHEET ***

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME..... ABLEBOND[®] 8361J Adhesive
 SYNONYM NAME(S)..... Modified Epoxy Resin

Ablestik Laboratories
 Subsidiary of National Starch and Chemical Company
 20021 Susana Road
 Rancho Dominguez, CA 90221
 USA

Emergency telephone numbers:

For U.S., Canada and the U.S. Virgin Islands: 1 - 800 - 424 - 9300
 (24hours, CHEMTREC)

For calls originating elsewhere: 703-527-3887 (Collect calls are accepted)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>COMPONENT</u>	<u>CAS NUMBER</u>	<u>CONCENTRATION RANGE (%)</u>
Silver	7440-22-4	60-100
Gamma-Butyrolcatone	96-48-0	1-5
Epoxy Resin	Proprietary	10-30
Curing agent & Hardener	Proprietary	1-5

3. HAZARDS IDENTIFICATION

Emergency Overview

Silver paste

Danger! Corrosive. May cause eye and skin burns.
 May cause skin sensitization. Risk of sensitization depends on duration
 and level of exposure.

EYE..... Irritating, and will injure eye tissue
 if not removed promptly.

SKIN CONTACT..... Irritating to the skin. May be
 absorbed through the skin. May cause
 skin sensitization, a partial or
 whole-body dermatitic rash experienced
 ater exposure, however minimal.

INHALATION..... Irritating and/or toxic vapors may
 be released at elevated temperatures.
 Vapors may be irritating to
 respiratory system and nasal passages.

INGESTION..... May cause burning of mouth, throat and
 stomach with abdominal and chest pain,
 nausea, vomiting, diarrhea, thirst and
 weakness. Aspiration may occur during
 swallowing or vomiting, resulting in
 lung damage.

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4. FIRST-AID MEASURES

EYE.....	Immediately flush eyes with large amounts of water for at least 15 minutes, lifting upper and lower lids. If irritation persists, get medical attention.
SKIN CONTACT.....	Flush exposed areas thoroughly with water until all chemical is removed. Remove contaminated clothing and launder before reuse. If irritation persists, get medical attention.
INHALATION.....	Remove to fresh air. Get medical attention if irritation persists.
INGESTION.....	Get medical attention.

5. FIREFIGHTING MEASURES

AUTOIGNITION.....	Not available
FLASH POINT.....	Not available
EXTINGUISHING MEDIA.....	Foam; CO2; Dry chemical
SPECIAL FIREFIGHTING PROCEDURES....	Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.
FIRE & EXPLOSION HAZARDS.....	Emits toxic fumes under fire conditions.
UPPER EXPLOSION LIMIT (%).....	Not Available
LOWER EXPLOSION LIMIT (%).....	Not Available

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES.....	Scrape up and place in suitably labeled container for disposal.
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7. HANDLING AND STORAGE

STORAGE TEMPERATURE.....	- 40 ⁰ C
SPECIAL SENSITIVITY.....	Heat
HANDLING/STORAGE.....	Empty containers may contain product residue; follow MSDS and label warnings even after they have been emptied.
VENTILATION REQUIREMENTS.....	Vent curing oven to outdoors.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>COMPONENT</u>	<u>EXPOSURE LIMITS</u>
Silver	OSHA: PEL-TWA; 0.01 mg/m ³ ACGIH: TLV-TWA; 0.1 mg/m ³
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.
CLOTHING REQUIREMENTS.....	Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.
CHANGE/REMOVAL OF CLOTHING.....	If product is spilled on clothes, remove immediately and launder before reuse.
WASH REQUIREMENTS.....	If contact has occurred, wash with soap and water before eating.
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
APPEARANCE/ODOR.....	Silver
ODOR THRESHOLD.....	Not available
PH AS IS.....	Not available
BOILING POINT.....	Not available
MELTING/FREEZING POINT.....	Not available
SOLUBILITY IN WATER.....	Insoluble
PARTITION COEFFICIENT (n-octanol/water).....	Not available
SPECIFIC GRAVITY (WATER=1).....	3.4
BULK DENSITY.....	Not available
EVAPORATION RATE.....	Not available
VAPOR PRESSURE (mmHg).....	Not available
VAPOR DENSITY (air = 1).....	Not available
VISCOSITY.....	Not available
VOLATILES.....	Not available
VOLATILE ORGANIC COMPOUNDS.....	Not available
AUTOIGNITION.....	Not available
FLASH POINT.....	Not available
OXIDIZING PROPERTIES.....	Not available

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10. STABILITY AND REACTIVITY

STABILITY.....	Stable
MATERIALS TO AVOID.....	Oxidizing agents, acids, and alkaline materials.
HAZARDOUS DECOMPOSITION PRODUCTS...	Carbon dioxide, carbon monoxide, oxides of nitrogen and unknown organics. Thermal decomposition products are hazardous and/or toxic.

11. TOXICOLOGICAL INFORMATION

CHRONIC (LONG TERM) EFFECTS OF EXPOSURE

ROUTE OF ENTRY.....	Skin, Inhalation
EFFECTS OF CHRONIC EXPOSURE.....	Repeated exposure may cause skin sensitization. This product has not been tested for mutagenicity. Epoxy resins similar to those used in this formulation have been tested and have produced equivocal mutagenic activity. The relevance of those findings to toxicological impact on humans is unknown. 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.
TARGET ORGANS.....	Skin
CARCINOGEN.....	No
SENSITIZER.....	Yes

TOXICOLOGY INFORMATION

RAW MATERIAL NAME.....	gamma-Butyrolactone
ORAL LD50, SPECIES TESTED.....	1540.0 mg/kg Rat; 1800.0 mg/kg Rat; 1720.0 mg/kg Mouse
NOTES ON ORAL TOXICITY.....	Low order of toxicity.
DERMAL LD50, SPECIES TESTED.....	8000.0 mg/kg Guinea Pig
NOTES ON DERMAL TOXICITY.....	Moderate systemic toxicity through the skin. Irritating to the skin.
NOTES ON INHALATION TOXICITY.....	Low order of toxicity. Irritating to eyes and respiratory tract.
NOTES ON EYE IRRITATION.....	Severely irritating. If not removed promptly, will injure eye tissue, which may result in permanent damage.

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12. ECOLOGICAL INFORMATION

Not available.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS..... Waste disposal should be in accordance with existing federal, state and local environmental regulations.

EMPTY CONTAINER WARNINGS..... Empty containers may contain product residue; follow MSDS and label warnings even after they have been emptied.

14. TRANSPORTATION INFORMATION

DOT INFORMATION

DOT SHIPPING NAME..... Not regulated
UN/ID Number..... NA
Class NA
Packaging Group NA
Subsidiary risk NA
Label NA

15. REGULATORY INFORMATION

TSCA..... All components are in compliance with TSCA requirements.

STATE LAWS..... WARNING: This product contains the following chemical known to the State of California to cause cancer:

Glycidol and Benzene are present in trace amounts.

WARNING: This product contains the following chemical known to the State of California to cause birth defects or other reproductive harm:

Toluene and Benzene are present in trace amounts.

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SARA/TITLE III, THIS PRODUCT CONTAINS (OR IS) A TOXIC CHEMICAL FOR
ROUTINE ANNUAL CHEMICAL RELEASE REPORTING UNDER SECTION 313:

Silver

The information given and the recommendations made herein apply to our product(s) alone and are not combined with other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guaranty of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

16. OTHER INFORMATION

MSDS DATE..... December 19,'05
CHANGES SINCE PREVIOUS ISSUE..... -

FOR REGULATORY INFORMATION, CONTACT:

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