

*** MATERIAL SAFETY DATA SHEET ***

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME..... ABLEBOND[®] 8290 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 RANGES (%)</u>
Silver	7440-22-0	60-100
Epoxy resin	Proprietary	10-30
Metal oxide	Proprietary	1-5
Curing and hardening agent	Proprietary	1-5
Gamma-butyrolactone	96-48-0	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 may injure eye tissue if not removed promptly.

SKIN CONTACT..... Frequent or prolonged contact may irritate and cause dermatitis.

INHALATION..... Irritating and/or toxic vapors may be released at elevated temperatures. If the cured product is to be sanded or ground, wet sanding is recommended to eliminate

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airborne dust. Appropriate respiratory protection is suggested.

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.

4. FIRST-AID MEASURES

EYE..... Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT..... Flush with large amounts of water; use soap if available.

INHALATION..... Remove to fresh air. Get medical attention if irritation persists.

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 Applicable

FLASH POINT..... Not Applicable

EXTINGUISHING MEDIA..... CO2; Foam; 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 Applicable

LOWER EXPLOSION LIMIT (%)..... Not Applicable

6. ACCIDENTAL RELEASE MEASURES

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

For safety and environmental precautions, please review entire Material Safety Data Sheet for necessary information.

7. HANDLING AND STORAGE

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STORAGE TEMPERATURE..... -40⁰ C
 SPECIAL SENSITIVITY..... Heat
 HANDLING/STORAGE..... Keep in original containers until
 point of use.
 VENTILATION REQUIREMENTS..... Vent curing oven to outdoors.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Silver OSHA: PEL-TWA: 0.01 mg/m³
 ACGIH: TLV-PEL: 0.1 mg/m³

Metal Dust and mist, OSHA; PEL-TWA: 1 mg/m³
 ACGIH; TLV-PEL 1 mg/m³
 Fume, OSHA; PEL-TWA: 0.1 mg/m³
 ACGIH; TLV-PEL 0.2 mg/m³

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..... Appropriate protective clothing and
 equipment is recommended to minimize
 skin contact with this substance.

CHANGE/REMOVAL OF CLOTHING..... Not Applicable

WASH REQUIREMENTS..... Not Applicable

RESPIRATOR REQUIREMENTS..... No respiratory protection is
 recommended while working with this
 material. However, if operating
 conditions create high vapor or mist
 concentration, use of an approved
 respirator is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

PURE SUBSTANCE OR MIXTURE..... Mixture

PHYSICAL FORM..... Paste

APPEARANCE/ODOR..... Silver

ODOR THRESHOLD..... Not available

PH AS IS..... Not applicable

BOILING POINT..... Not available

MELTING/FREEZING POINT..... Not available

SOLUBILITY IN WATER..... Insoluble

PARTITION COEFFICIENT
 (n-octanol/water)..... Not applicable

SPECIFIC GRAVITY (WATER=1)..... 3.8

BULK DENSITY..... Not Applicable

EVAPORATION RATE..... Not available

VAPOR PRESSURE (mmHg)..... Not available

VAPOR DENSITY (air = 1)..... Not available

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VISCOSITY..... Not available
VOLATILES..... Not available
VOLATILE ORGANIC COMPOUNDS..... Not available
AUTOIGNITION..... Not available
FLASH POINT..... Not available
OXIDIZING PROPERTIES..... Not Applicable

10. STABILITY AND REACTIVITY

STABILITY..... Stable
MATERIALS TO AVOID..... Strong oxidizing agents and strong Lewis or mineral acids.

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 contact
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

TOXICOLOGY INFORMATION

RAW MATERIAL NAME..... Curing & hardening agent
NOTES ON ORAL TOXICITY..... Corrosive to mouth, esophagus and stomach.
NOTES ON DERMAL TOXICITY..... Corrosive, causes permanent skin damage. May cause skin sensitization, a partial or whole-body dermatitic rash experienced after exposure, however minimal. May be absorbed through the

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skin.
NOTES ON INHALATION TOXICITY..... Irritating to eyes and respiratory tract. May cause allergic respiratory reaction.
NOTES ON EYE IRRITATION..... Corrosive. Will cause burns and permanent tissue damage.
OTHER NOTES ON TOXICITY..... Sensitizer.

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..... This product contains the following chemicals known to the State of California to cause cancer: Glycidol, Acrylonitrile, Methyl iodide and Benzene are present in trace amounts.

This product contains the following chemical known to the State of

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California to cause birth defects or
other reproductive harm:
Benzene and Toluene are present in
trace amount.

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

Silver and Metal oxide

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..... July 23, '07
CHANGES SINCE PREVIOUS ISSUE..... -

FOR REGULATORY INFORMATION, CONTACT:

Health & Safety Coordinator
Ablestik Laboratories
National Starch & Chemical Company
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Rancho Dominguez, CA 90221
USA

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