

**Henkel**

PRODUCT NUMBER: EC800281

ISSUE DATE: 14-December-2010

IDH# 1382528



**\*\*\* MATERIAL SAFETY DATA SHEET \*\*\***

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME: TRA-BOND F112 RESIN  
Epoxy Resin

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

**2. HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW

WARNING.  
EYE IRRITANT.  
HARMFUL IF SWALLOWED.  
SKIN IRRITANT.  
SKIN SENSITIZER.  
Light yellow Liquid Slight Odor

EYE: Irritating, but does not injure eye tissue. Contact with eyes causes redness and discomfort which is transient.

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

INHALATION: Unlikely to be hazardous by inhalation because of the low vapor pressure of the material at ambient temperature. Vapor or aerosol, if generated, can cause irritation of the eyes, nose and respiratory tract. Avoid breathing vapors or mists.

INGESTION: Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract. May cause nausea, vomiting and diarrhea.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

| CHEMICAL FAMILY  | Formulated Epoxy Resin |                                |  |
|--|------------------------|--------------------------------|--|
| COMPONENT  | CAS NUMBER             | CONCENTRATION<br>(% by weight) |  |
| 2,2'[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane | 1675-54-3              | >50                            |  |
| Phenol-formaldehyde polymer glycidyl ether                         | 28064-14-4             | 35 - 50                        |  |

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**4. FIRST-AID MEASURES**

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|--------------|--|
| EYE          | Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.   |
| SKIN CONTACT | Wash skin with soap and water. If symptoms develop, 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. DO NOT induce vomiting. If individual is conscious, give milk or water to dilute stomach contents. Keep warm and quiet. Get prompt medical attention. |

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**5. FIREFIGHTING MEASURES**

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|                                 |  |
|---------------------------------|--|
| AUTOIGNITION                    | Not available  |
| FLASH POINT                     | 484 °F (Pensky-Martens Closed Tester)  |
| EXTINGUISHING MEDIA             | Foam; Water spray or fog, CO2, Dry Chemical; Do not use direct water stream on burning liquid.   |
| 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. Combustion will evolve toxic and irritant vapors. Polymerization may take place at elevated temperatures.        |
| HAZARDOUS COMBUSTION PRODUCTS   | Carbon monoxide, carbon dioxide, chlorine compounds, hydrocarbons of indeterminate nature (depending on conditions).                               |
| LOWER EXPLOSION LIMIT (%)       | Not applicable   |
| UPPER EXPLOSION LIMIT (%)       | Not applicable   |

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**6. ACCIDENTAL RELEASE MEASURES**

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|                           |   |
|---------------------------|---|
| SPILL AND LEAK PROCEDURES | Ventilate area. May cause allergic skin reaction. Use suitable protective clothing. Absorb spillages onto sand, earth or any suitable absorbent material. Do not allow to enter drains, sewers or watercourses. Scrape absorbed material into proper waste containers. Wash area with soap and water; prevent entry of wash water into drains or other waterways. Dispose of wastes and water in accordance with all applicable federal, state and local regulations. |
|---------------------------|---|

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

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**7. HANDLING AND STORAGE**

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|-----------------------------------|--|
| STORAGE TEMPERATURE               | 25 °C  |
| SHELF LIFE, (Days)                | 180  |
| HANDLING/STORAGE                  | Keep containers properly sealed and store indoors in a well ventilated area. Keep away from heat and sources of ignition. Keep away from oxidizing agents. Keep away from acids. |
| SENSITIVITY TO STATIC ELECTRICITY | No   |
| SPECIAL SENSITIVITY               | Store away from amines.  |
| SENSITIVITY TO MECHANICAL IMPACT  | No   |
| OTHER PRECAUTIONS                 | This material should not be spilled, dumped, or flushed into sewers or public waterways.   |

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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|-----------------------------|---|
| VENTILATION REQUIREMENTS    | Use in a well-ventilated area. Vent curing oven to outdoors.  |
| EYE PROTECTION REQUIREMENTS | Wear safety glasses with side shields. Eye washing equipment must be provided at handling points.   |
| GLOVE REQUIREMENTS          | Employee must wear appropriate protective gloves to prevent contact with this substance. Impervious neoprene or rubber gloves are recommended. Wear thermal insulating gloves when handling hot masses. |
| CLOTHING REQUIREMENTS       | Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance. Uniforms, coveralls, or a lab coat should be worn.                     |
| CHANGE/REMOVAL OF CLOTHING  | Remove contaminated clothing and laundry before reuse. Discard shoes, belts, wallets, and any other contaminated leather items.   |
| WASH REQUIREMENTS           | Wash exposed areas with soap and water.   |
| RESPIRATOR REQUIREMENTS     | None required under normal handling conditions. Use NIOSH approved respirator if vapor or mist levels are irritating.   |

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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|---|---------------------------------------|
| PHYSICAL FORM                           | Liquid                                |
| COLOR                                   | Light yellow                          |
| ODOR                                    | Slight                                |
| ODOR THRESHOLD                          | Not available                         |
| PH AS IS                                | Not applicable                        |
| pH IN (1%) SOLUTION                     | Not applicable                        |
| OXIDIZING PROPERTIES                    | Not applicable                        |
| BOILING POINT                           | > 500 °F                              |
| SOLUBILITY IN WATER                     | Insoluble                             |
| PARTITION COEFFICIENT (n-octanol/water) | Not applicable                        |
| VISCOSITY                               | 11000 - 15000 cPs                     |
| SPECIFIC GRAVITY (WATER=1)              | 1.2                                   |
| BULK DENSITY                            | 9.76 lb/gal                           |
| EVAPORATION RATE                        | Not applicable                        |
| VAPOR PRESSURE (mmHg)                   | 0.03 @ 25°C                           |
| VAPOR DENSITY (air = 1)                 | Not applicable                        |
| VOLATILES                               | Negligible                            |
| VOLATILE ORGANIC COMPOUNDS              | Approximately 0.25 g/liter            |
| AUTOIGNITION                            | Not available                         |
| FLASH POINT                             | 484 °F (Pensky-Martens Closed Tester) |

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**10. STABILITY AND REACTIVITY**

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|-------------------------------------|---|
| STABILITY                           | Stable  |
| STABILITY DETAIL                    | Material is stable under normal temperatures and pressures.   |
| MATERIALS TO AVOID                  | Oxidizers, Bases, Acids, Amines   |
| CONDITIONS TO AVOID                 | Avoid excessive heat.   |
| HAZARDOUS DECOMPOSITION PRODUCTS    | Thermal decomposition products are hazardous and/or toxic. Carbon monoxide, carbon dioxide, chlorine compounds, hydrocarbons of indeterminate nature (depending on conditions). |
| HAZARDOUS POLYMERIZATION CONDITIONS | Heat may cause hazardous polymerization.  |
| REACTIVITY                          | May polymerize with amine compounds.  |

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11. TOXICOLOGICAL INFORMATION

|  |   |   |   |
|--|---|---|---|
| ROUTE OF ENTRY   |   | Eye Contact; Skin Contact; Inhalation   |   |
| <b>CARCINOGEN</b>  | <u>IARC</u><br>(group)                            | <u>NTP</u>  | <u>OSHA Substance</u><br><u>Specific Regulation</u> |
| COMPONENT<br>There is no evidence that this product poses a carcinogenic risk under normal conditions of handling and use. |   |   |   |
| <b>CHRONIC (LONG TERM) EFFECTS OF EXPOSURE</b>   |   |   |   |
| 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.                                    |   |
| TARGET ORGANS  |   | Skin; Eyes  |   |
| SKIN SENSITIZATION   |   | Sensitizer. May cause allergic reaction.  |   |
| <b>PRODUCT TOXICOLOGY</b>  |   |   |   |
| PRODUCT INFORMATION  |   | Low acute toxicity under normal conditions of handling and use.   |   |
| EYE IRRITATION   |   | Slightly irritant to skin and eyes. Vapor released during hot processing may be irritant to the respiratory system.   |   |
| COMPONENT  | ORAL TOXICITY                                     | NOTES ON ORAL TOXICITY  |   |
| 2,2'[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane   | Oral LD50: Rat 11 g/kg<br>Oral LD50: Rat > 4 g/kg | Low oral toxicity.  |   |
| COMPONENT  | DERMAL TOXICITY                                   | NOTES ON DERMAL TOXICITY  |   |
| 2,2'[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane   |   | Repeated or prolonged skin contact may result in mild irritation. Repeated and/or prolonged contact may cause skin sensitization.   |   |
| COMPONENT  | INHALATION TOXICITY                               | NOTES ON INHALATION TOXICITY  |   |
| 2,2'[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane   |   | 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. |   |
| COMPONENT  |   | NOTES ON EYE IRRITATION   |   |
| 2,2'[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane   |   | Irritating, but does not injure eye tissue.   |   |

12. ECOLOGICAL INFORMATION

|                                 |   |
|---------------------------------|---|
| POTENTIAL EFFECT ON ENVIRONMENT | Do not allow to enter drains, sewers or watercourses. |
| MOBILITY                        | Insoluble   |

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|                               |                            |
|-------------------------------|----------------------------|
| PERSISTENCE AND DEGRADABILITY | Not readily biodegradable. |
| POTENTIAL TO BIOACCUMULATE    | Unknown.                   |
| AQUATIC TOXICITY              | None Established           |

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**13. DISPOSAL CONSIDERATIONS**

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|--------------------------|---|
| 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. |

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**14. TRANSPORTATION INFORMATION**

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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.

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**15. REGULATORY INFORMATION**

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|--|---|
| TSCA                                   | All components are on the TSCA inventory.   |
| Canadian Domestic Substance List (DSL) | Is on DSL   |
| China (IECSC)                          | On the IECSC Inventory.   |
| Australia (AICS)                       | On the AICS Inventory.  |
| Korea (KECI)                           | On the KECI Inventory.  |
| Philippines (PICCS)                    | On the PICCS Inventory.   |
| EINECS                                 | All components of this product are listed in EINECS or ELINCS, or are otherwise exempt from EU notification requirements. |

SARA - Section 313 (Superfund Amendments and Reauthorization Act of 1986 - 40CFR 372)                      CAS NUMBER  
Contains no substances at or above the reporting threshold under Section 313.

**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       | CAS NUMBER |
|-----------------|------------|
| Epichlorohydrin | 106-89-8   |

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**16. OTHER INFORMATION**

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**HMIS® Hazard Ratings**

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant

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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> |
|---------------|---------------------|------------------------|
| /2            | 1                   | 1                      |

PREPARED BY: Regulatory Affairs  
Henkel Electronic Materials

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