

Henkel Electronic Materials

PRODUCT NUMBER: EC800910

ISSUE DATE: 29-April-2010



*** MATERIAL SAFETY DATA SHEET ***

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: TRA-BOND 2151 RESIN
Epoxy Resin

COMPANY ADDRESS: Henkel Electronic Materials
15350 Baranca Parkway
Irvine, CA 92618

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: 1-949-789-2500
Internet: www.henkel.com/electronics

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING.
Possible cancer hazard.
Suspected of causing genetic defects.
EYE IRRITANT.
HARMFUL IF SWALLOWED.
SKIN IRRITANT.
SKIN SENSITIZER.
Blue Paste 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

COMPONENT	CAS NUMBER	CONCENTRATION (% by weight)
Aluminum oxide	1344-28-1	>50
Bisphenol A-epichlorohydrin polymer	25068-38-6	20 - 35
Silicon dioxide, crystalline free	112945-52-5	1 - 5
Butyl glycidyl ether	2426-08-6	<1
Titanium dioxide	13463-67-7	<0.5

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4. FIRST-AID MEASURES

EYE	Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 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. Get medical attention if irritation persists.
INGESTION	Treat symptomatically and supportively. Get medical attention.

5. FIREFIGHTING MEASURES

AUTOIGNITION	Not available
FLASH POINT	> 485 °F (Pensky-Martens Closed Tester)
EXTINGUISHING MEDIA	Foam; Water Fog; CO2; Dry Chemical
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.
HAZARDOUS COMBUSTION PRODUCTS	Carbon monoxide, carbon dioxide, unknown hydrocarbons.
LOWER EXPLOSION LIMIT (%)	Not applicable
UPPER EXPLOSION LIMIT (%)	Not applicable

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES	No smoking, flames or flares in hazard area. Keep unnecessary people away; isolate hazard area and deny entry. Avoid contact. Use suitable protective clothing. Provided it is safe to do so, isolate the source of the leak. Do not allow to enter drains, sewers or watercourses. Absorb spillages onto sand, earth or any suitable absorbent material. Scrape up and place in suitably labeled container for disposal.
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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	25 °C
SHELF LIFE, (Days)	180
HANDLING/STORAGE	Keep containers properly sealed when not in use.
SENSITIVITY TO STATIC ELECTRICITY	No
SENSITIVITY TO MECHANICAL IMPACT	No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	EXPOSURE LIMITS		Mfg Working Standard
	ACGIH	OSHA	
Aluminum oxide	10 mg/m ³ PEL (total dust); 5 mg/m ³ PEL (respirable fraction, listed under Particulates not otherwise regulated).	15 mppcf TWA (respirable fraction); 5 mg/m ³ TWA (respirable fraction); 50 mppcf TWA (total dust); 15 mg/m ³ TWA (total dust)	Manufacturer: 6 mg/m ³
Silicon dioxide, crystalline free	10 mg/m ³ PEL (total dust); 5 mg/m ³ PEL (respirable fraction, listed under	15 mppcf TWA (respirable fraction); 5 mg/m ³ TWA	

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	Particulates not otherwise regulated).	(respirable fraction); 50 mppcf TWA (total dust); 15 mg/m ³ TWA (total dust)
Butyl glycidyl ether	Skin - potential significant contribution to overall exposure by the cutaneous route 3 ppm TWA.	50 ppm TWA; 270 mg/m ³ TWA
Titanium dioxide	10 mg/m ³ TWA.	15 mg/m ³ TWA (total dust)

VENTILATION REQUIREMENTS	Use in a well-ventilated area.
EYE PROTECTION REQUIREMENTS	Safety glasses, goggles or face shield to protect against splashing.
GLOVE REQUIREMENTS	Impervious neoprene or rubber gloves are recommended.
CLOTHING REQUIREMENTS	Wear protective equipment to comply with good occupational hygiene practice.
CHANGE/REMOVAL OF CLOTHING	Remove contaminated clothing and launder before reuse.
WASH REQUIREMENTS	Wash before eating, drinking, or using toilet facilities.
RESPIRATOR REQUIREMENTS	Avoid prolonged or repeated breathing of vapor or mists. If exposure may or does exceed occupational exposure limits, use a NIOSH approved respirator to prevent overexposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Paste
COLOR	Blue
ODOR	Slight
ODOR THRESHOLD	Not available
OXIDIZING PROPERTIES	Not applicable
SOLUBILITY IN WATER	Insoluble
PARTITION COEFFICIENT (n-octanol/water)	Not applicable
SPECIFIC GRAVITY (WATER=1)	2.5
EVAPORATION RATE	Not applicable
VAPOR PRESSURE (mmHg)	Not applicable
VAPOR DENSITY (air = 1)	Not applicable
VOLATILES	< 0.1 %/wt
VOLATILE ORGANIC COMPOUNDS	Approximately 1.5 g/liter
AUTOIGNITION	Not available
FLASH POINT	> 485 °F (Pensky-Martens Closed Tester)

10. STABILITY AND REACTIVITY

STABILITY	Stable
STABILITY DETAIL	Material is stable under normal temperatures and pressures.
MATERIALS TO AVOID	Strong acids, Strong bases, Strong oxidizers, Amines
CONDITIONS TO AVOID	Elevated temperatures
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon monoxide, carbon dioxide, unknown hydrocarbons.
HAZARDOUS POLYMERIZATION CONDITIONS	May polymerize with amine compounds.

11. TOXICOLOGICAL INFORMATION

ROUTE OF ENTRY	Eye Contact; Skin Contact
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CARCINOGEN	<u>IARC</u> (group)	<u>NTP</u>	<u>OSHA Substance</u> <u>Specific Regulation</u>
COMPONENT Titanium dioxide	Yes (2B)	No	Not Listed

CHRONIC (LONG TERM) EFFECTS OF EXPOSURE

SKIN SENSITIZATION

Sensitizer. May cause allergic reaction.

PRODUCT TOXICOLOGY

PRODUCT INFORMATION

Low acute toxicity under normal conditions of handling and use.

EYE IRRITATION

May cause irritation to skin and eyes.

COMPONENT Aluminum oxide

ORAL TOXICITY

NOTES ON ORAL TOXICITY

No hazard in normal industrial use. Ingestion may cause irritation of the gastrointestinal tract. Non-toxic.

Bisphenol A-epichlorohydrin polymer

Oral LD50: Rat 11400 mg/kg
Oral LD50: Mouse 15600 mg/kg

Ingestion may cause irritation of the gastrointestinal tract.

Butyl glycidyl ether

Oral LD50: Rat 1000 mg/kg

May cause nausea, vomiting and diarrhea.

Titanium dioxide

Oral LD50: Rat > 10000 mg/kg

Unlikely to be hazardous if swallowed.

COMPONENT Aluminum oxide

DERMAL TOXICITY

NOTES ON DERMAL TOXICITY

Slight/mild irritant.

Bisphenol A-epichlorohydrin polymer

Dermal LD50: Rabbit > 20000 mg/kg

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

Butyl glycidyl ether

Dermal LD50: Rabbit 788 mg/kg

Severely irritating; may cause permanent skin damage. Repeated and/or prolonged contact may cause irritation and skin sensitization.

Titanium dioxide

Dermal LD50: Rabbit > 10000 mg/kg

May cause mechanical irritation.

COMPONENT Aluminum oxide

INHALATION TOXICITY

NOTES ON INHALATION TOXICITY

Dust may cause irritation.

Bisphenol A-epichlorohydrin polymer

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

Butyl glycidyl ether

Inhalation LC50 (8hr): Rat 1030 ppm

Vapor or aerosol, if generated, can cause irritation of the eyes, nose and respiratory tract.

Titanium dioxide

Inhalation LC50 (4hr): Rat 6.8 mg/l

Exposure to high concentrations may produce lung damage.

COMPONENT

NOTES ON EYE IRRITATION

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Aluminum oxide	Slight/mild irritant. Particulates may scratch eye surfaces and cause mechanical irritation.
Bisphenol A-epichlorohydrin polymer	Irritating, but does not injure eye tissue.
Butyl glycidyl ether	Severe/very severe irritant.
Titanium dioxide	Particulates may scratch eye surfaces and cause mechanical irritation.

12. ECOLOGICAL INFORMATION

POTENTIAL EFFECT ON ENVIRONMENT	Do not allow to enter drains, sewers or watercourses.
POTENTIAL TO BIOACCUMULATE	The product has low potential for bioaccumulation.
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
ICAO/IATA CLASSIFICATION	Not classified as dangerous.

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	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.

SARA - Section 313 (Superfund Amendments and Reauthorization Act of 1986 - 40CFR 372)	CAS NUMBER
Aluminum oxide	1344-28-1

CALIFORNIA PROPOSITION 65

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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
Phenyl glycidyl ether	122-60-1

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

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<u>Health</u>	<u>Flammability</u>	<u>Physical Hazard</u>
*2	1	1

PREPARED BY:

Regulatory Affairs
Henkel Electronic Materials

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