

IDH# 1446133



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

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: TRA-BOND F112 HARDENER  
Hardener.

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

DANGER!  
 CORROSIVE. CAUSES SEVERE BURNS TO SKIN.  
 CORROSIVE. CAUSES SEVERE OR PERMANENT DAMAGE TO EYES.  
 SEVERE SKIN IRRITANT. MAY CAUSE PERMANENT DAMAGE.  
 HARMFUL IF INHALED.  
 TOXIC IN CONTACT WITH SKIN.  
 EYE IRRITANT.  
 CORROSIVE IF SWALLOWED.  
 RESPIRATORY SENSITIZER.  
 SKIN SENSITIZER.  
 Blue Liquid Ammonia Odor

EYE: Extremely severe irritant/corrosive. May cause severe burns which could lead to permanent damage or total loss of vision. The vapor and the liquid may cause burning, intense irritation and excessive watering of the eye.

SKIN CONTACT: Corrosive, causes permanent skin damage. Severely irritating; may cause permanent skin damage. Repeated and/or prolonged contact may cause skin sensitization. Can be absorbed through skin causing systemic toxic effects.

INHALATION: Vapor or aerosol, if generated, can cause irritation of the eyes, nose and respiratory tract. Avoid breathing vapors or mists. Exposure to high concentrations may produce lung damage. Respiratory sensitizer.

INGESTION: Corrosive to mouth, throat and stomach.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL FAMILY: Amine

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COMPONENT	CAS NUMBER	CONCENTRATION (% by weight)
Epoxy polyamine adduct	PROPRIETARY	>50
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	20 - 35
Diethylenetriamine	111-40-0	10 - 20
Bisphenol A, (chloromethyl)oxirane polymer, reaction product with diethylene glycol bis(3-aminopropyl ether)	68585-28-4	1 - 5

**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	Remove grossly contaminated clothing, including shoes, and launder before re-use. Discard shoes. Wash skin with soap and water. Obtain immediate medical attention.
INHALATION	Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for proper 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.

**5. FIREFIGHTING MEASURES**

AUTOIGNITION	Not determined.
FLASH POINT	> 93 °C (Closed Cup)
EXTINGUISHING MEDIA	Dry Chemical; Foam; CO2; Water Spray
FIRE & EXPLOSION HAZARDS	Combustible at high temperatures.
HAZARDOUS COMBUSTION PRODUCTS	Carbon dioxide, carbon monoxide, oxides of nitrogen and unknown organics.
LOWER EXPLOSION LIMIT (%)	Not determined.
UPPER EXPLOSION LIMIT (%)	Not determined.

**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. Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance. Wear rubber safety shoes or rubber boots over leather safety shoes. Ventilate area. 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. Disposal should be in accordance with local, state or national legislation.
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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 in a tightly closed container. Protect from physical damage. Store in a cool, dry area away from water.
SENSITIVITY TO STATIC ELECTRICITY	No
SPECIAL SENSITIVITY	Store in tightly closed containers to protect from atmospheric moisture. Use and store with adequate exhaust ventilation.

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SENSITIVITY TO MECHANICAL IMPACT No

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

COMPONENT	EXPOSURE LIMITS <u>ACGIH</u>	<u>OSHA</u>	<u>Mfg Working Standard</u>
Diethylenetriamine	Skin - potential significant contribution to overall exposure by the cutaneous route 1 ppm TWA.		
VENTILATION REQUIREMENTS	Provide local exhaust ventilation system to meet published exposure limits.		
EYE PROTECTION REQUIREMENTS	Safety glasses, goggles or face shield to protect against splashing.		
GLOVE REQUIREMENTS	Nitrile rubber or Viton™ gloves are recommended. Cotton or other absorbent gloves should not be worn.		
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. Rubber boots and apron if exposure is severe.		
CHANGE/REMOVAL OF CLOTHING	Remove contaminated clothing and launder before reuse. Discard shoes, belts, wallets, and any other contaminated leather items.		
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**

PURE SUBSTANCE OR MIXTURE	Mixture
PHYSICAL FORM	Liquid
COLOR	Blue
ODOR	Ammonia
ODOR THRESHOLD	Not available
PH AS IS	Not applicable
pH IN (1%) SOLUTION	> 7
OXIDIZING PROPERTIES	Not applicable
BOILING POINT	> 146 °C
MELTING/FREEZING POINT	Not determined.
SOLUBILITY IN WATER	Slightly Soluble
PARTITION COEFFICIENT (n-octanol/water)	Not determined.
VISCOSITY	Not determined.
SPECIFIC GRAVITY (WATER=1)	1.000
BULK DENSITY	8.34 lb/gal
EVAPORATION RATE	Not applicable
VAPOR PRESSURE (mmHg)	< 1 mm Hg 20 C
VAPOR DENSITY (air = 1)	> 1.0
VOLATILES	Negligible
VOLATILE ORGANIC COMPOUNDS	Negligible
AUTOIGNITION	Not determined.
FLASH POINT	> 93 °C (Closed Cup)

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**10. STABILITY AND REACTIVITY**

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STABILITY	Stable
MATERIALS TO AVOID	Strong oxidizers, Acids, Bases, Epoxy resins
CONDITIONS TO AVOID	Elevated temperatures
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon dioxide, carbon monoxide, oxides of nitrogen and unknown organics.
HAZARDOUS POLYMERIZATION CONDITIONS	Hazardous polymerization will not occur.

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**11. TOXICOLOGICAL INFORMATION**

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

<b>CARCINOGEN</b>	<u>IARC</u> (group)	<u>NTP</u>	<u>OSHA Substance</u> <u>Specific Regulation</u>
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 severity of acute effects is such that significant repeated or prolonged exposure is unlikely.
TARGET ORGANS	Eyes; Skin; Respiratory system; Gastrointestinal
RESPIRATORY SENSITIZATION	Sensitizer. May cause allergic reaction.
SKIN SENSITIZATION	Sensitizer. May cause allergic reaction.

**PRODUCT TOXICOLOGY**

EYE IRRITATION A severe irritant to skin, eyes and respiratory system.

COMPONENT	ORAL TOXICITY	NOTES ON ORAL TOXICITY
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Oral LD50: Rat 3160 mg/kg	Corrosive to mouth, throat and stomach.
Diethylenetriamine	Oral LD50: Rat 1080 mg/kg	Slightly toxic. Corrosive to mouth, throat and stomach.

COMPONENT	DERMAL TOXICITY	NOTES ON DERMAL TOXICITY
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Dermal LD50: Rabbit 2500 mg/kg Dermal LD50: Rat > 2150 mg/kg	Corrosive.
Diethylenetriamine	Dermal LD50: Rabbit 1090 mg/kg Dermal LD50: Rat 672 - 1240 mg/kg	Corrosive, causes permanent skin damage. Can be absorbed through skin causing systemic toxic effects. Repeated and/or prolonged contact may cause skin sensitization.

COMPONENT	INHALATION TOXICITY	NOTES ON INHALATION TOXICITY
3,3'-Oxybis(ethyleneoxy)bis(propylamine)		Inhalation of dust or vapor may cause severe irritation to the nasal passages and/or the respiratory system.

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Diethylenetriamine	Inhalation LC50 (4hr): Rat 0.07 - 0.3 mg/l	Highly toxic. Extremely severe irritant/corrosive. May cause severe burns which could lead to permanent damage to respiratory system. Possible respiratory sensitizer.
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**COMPONENT**

3,3'-Oxybis(ethyleneoxy)bis(propylamine)

**NOTES ON EYE IRRITATION**

Extremely severe irritant/corrosive. May cause severe burns which could lead to permanent damage or total loss of vision.

Diethylenetriamine

Extremely severe irritant/corrosive. May cause severe burns which could lead to permanent damage or total loss of vision.

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**12. ECOLOGICAL INFORMATION**

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MOBILITY	The product is soluble in water.
POTENTIAL TO BIOACCUMULATE	Unknown.
AQUATIC TOXICITY	Not determined.

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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**

PROPER SHIPPING NAME	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
TECHNICAL NAME	(3,3'-Oxybis(ethyleneoxy)bis(propylamine) / Diethylenetriamine)
HAZARD CLASS	8
SUB. HAZARD CLASS	
U.N. NUMBER	UN2735
PACKING GROUP	III

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)	Not on Inventory
China (IECSC)	On the IECSC Inventory.

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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  
None reportable.

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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 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>
*3	1	0

PREPARED BY: Regulatory Affairs  
Henkel Electronic Materials

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