



Revision Date: 04/20/2006

Issue date: 04/20/2006

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product name:** ES2500, Part A  
**Product type:** Epoxy Resin  
**Company address:**  
 Henkel Corporation  
 211 Franklin Street  
 Olean, New York 14760

**Item No. :** EA2500  
**Region:** United States  
**Contact Information:**  
 Telephone: 716.372.6300  
 Emergency Telephone: 860.571.5100  
 Internet: www.electronics.henkel.us

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous components</u>	<u>%</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER</u>
Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6	30-60	None	None	None
Calcium carbonate 471-34-1	30-60	10 mg/m <sup>3</sup> TWA (particulate matter containing no asbestos and <1% crystalline silica)	15 mg/m <sup>3</sup> TWA (total dust) 5 mg/m <sup>3</sup> TWA (respirable fraction)	None
Calcium carbonate 1317-65-3	10-30	10 mg/m <sup>3</sup> TWA (particulate matter containing no asbestos and <1% crystalline silica)	15 mg/m <sup>3</sup> TWA total dust 5 mg/m <sup>3</sup> TWA respirable fraction	None
Oxirane, (butoxymethyl)- 2426-08-6	5-10	3 ppm TWA (skin)	270 mg/m <sup>3</sup> TWA 50 ppm TWA	None
Silica, quartz 14808-60-7	0.1-1	0.05 mg/m <sup>3</sup> TWA respirable fraction	0.1mg/m <sup>3</sup> TWA (respirable)	None
Carbon black 1333-86-4	0.1-1	3.5 mg/m <sup>3</sup> TWA	3.5 mg/m <sup>3</sup> TWA	None

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

HMIS:

**Physical state:** Liquid  
**Color:** Black  
**Odor:** Aromatic

**HEALTH:** 2\*  
**FLAMMABILITY:** 2  
**PHYSICAL HAZARD:** 0  
**Personal Protection:** See Section 8

**WARNING:** MAY CAUSE ALLERGIC SKIN REACTION.  
 COMBUSTIBLE LIQUID AND VAPOR.  
 MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

**Relevant routes of exposure:** Inhalation, Skin contact, Eye contact

Potential Health Effects

**Item No. :** EA2500

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**Inhalation:** May cause respiratory tract irritation. Contains crystalline silica (quartz), which is classified as a possible carcinogen. However, the crystalline silica present in this product is encapsulated in the epoxy resin and will only be liberated if the product is sanded or abraded, and even then what is liberated will not be a pure crystalline silica. Appropriate precautions, however, should be taken if the product is sanded or abraded to prevent personnel from breathing the dust.

**Skin contact:** May cause allergic skin reaction. May cause skin irritation.

**Eye contact:** May cause irritation.

**Ingestion:** Not expected under normal conditions of use.

**Existing conditions aggravated by exposure:** Eye, skin, and respiratory disorders. Pre-existing skin or lung allergies may increase the chance of developing exaggerated allergic symptoms from exposure to this product.

**See Section 11 for additional toxicological information.**

#### 4. FIRST AID MEASURES

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.

**Skin contact:** Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Ingestion:** Do not induce vomiting. If individual is conscious, wash out mouth with water. Never give anything by mouth to an unconscious person. Obtain medical attention.

#### 5. FIRE-FIGHTING MEASURES

**Flash point:** 85°C (185°F) Closed cup

**Autoignition temperature:** Not available

**Flammable/Explosive limits-lower %:** Not available

**Flammable/Explosive limits-upper %:** Not available

**Extinguishing media:** Water spray (fog), foam, dry chemical or carbon dioxide.

**Special fire fighting procedures:** Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Unusual fire or explosion hazards:** Closed containers may rupture (due to build up of pressure) when exposed to extreme heat. In the event of fire, cool tanks with water spray.

**Hazardous combustion products:** Oxides of carbon. Calcium oxide. Irritating organic vapors. Phenolics. Hydrogen chloride.

#### 6. ACCIDENTAL RELEASE MEASURES

**Environmental precautions:** Prevent product from entering drains or open waters.

**Clean-up methods:** Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable and closed containers for disposal.

## 7. HANDLING AND STORAGE

<b>Handling:</b>	Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep away from heat, spark and flame. For operations where eye or face contact could occur, provide safety shower and eyewash fountain.
<b>Storage:</b>	Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.
<b>Incompatible products:</b>	Refer to Section 10.

For information on product shelf life contact Henkel Customer Service at 1-716-372-6300.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering controls:</b>	Use local exhaust ventilation to maintain airborne concentrations below established exposure limits.
<b>Respiratory protection:</b>	Use NIOSH approved respirator if there is potential to exceed exposure limit(s).
<b>Skin protection:</b>	Chemical resistant, impermeable gloves.
<b>Eye/face protection:</b>	Chemical splash goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. An eyewash and safety shower should be nearby and ready for use.

See Section 2 for exposure limits.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquid
<b>Color:</b>	Black
<b>Odor:</b>	Aromatic
<b>Vapor pressure:</b>	< 0.01 mmHg
<b>pH:</b>	Not applicable
<b>Boiling point/range:</b>	Not available
<b>Melting point/range:</b>	Not available
<b>Specific gravity:</b>	1.6
<b>Vapor density:</b>	Not available
<b>Evaporation rate:</b>	Not available
<b>Solubility in water:</b>	Insoluble
<b>Partition coefficient (n-octanol/water):</b>	Not available
<b>VOC content:</b>	<1%; <10 grams/liter (estimated value for resin and hardener mixed together)

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions Risk of ignition.
<b>Hazardous polymerization:</b>	Will not occur.
<b>Hazardous decomposition products:</b>	None reasonably foreseeable
<b>Incompatibility:</b>	Strong oxidizing agents. Strong acids and strong bases. Amines.
<b>Conditions to avoid:</b>	High temperatures. Heat, flames and sparks. Storage with incompatible materials.

## 11. TOXICOLOGICAL INFORMATION

### Carcinogen Status

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6	No	No	No
Calcium carbonate 471-34-1	No	No	No
Calcium carbonate 1317-65-3	No	No	No
Oxirane, (butoxymethyl)- 2426-08-6	No	No	No
Silica, quartz 14808-60-7	Known Carcinogen	Group 1	Yes
Carbon black 1333-86-4	No	Group 2B	Yes

#### Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6	Allergen, Irritant
Calcium carbonate 471-34-1	Nuisance dust
Calcium carbonate 1317-65-3	Nuisance dust
Oxirane, (butoxymethyl)- 2426-08-6	Mutagen, Liver, Irritant, Central nervous system, Allergen
Silica, quartz 14808-60-7	Some evidence of carcinogenicity, Lung, Immune system
Carbon black 1333-86-4	Respiratory, Some evidence of carcinogenicity

### 12. ECOLOGICAL INFORMATION

**Ecological information:** Not available

### 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

**Recommended method of disposal:** Dispose of in accordance with Federal, State and local regulations.

**EPA hazardous waste number:** Not a RCRA hazardous waste.

### 14. TRANSPORT INFORMATION

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

**U.S. Department of Transportation Ground (49 CFR):**

**Proper shipping name:** Not regulated  
**Hazard class or division:** None  
**Identification number:** None  
**Packing group:** None

**International Air Transportation (ICAO/IATA):**

**Proper shipping name:** Not regulated  
**Hazard class or division:** None  
**Identification number:** None  
**Packing group:** None

**Water Transportation (IMO/IMDG):**

**Proper shipping name:** Not regulated  
**Hazard class or division:** None  
**Identification number:** None  
**Packing group:** None

## 15. REGULATORY INFORMATION

### United States Regulatory Information

**TSCA 8 (b) Inventory Status:** All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.  
**TSCA 12 (b) Export Notification:** None.

**CERCLA/SARA Section 302 EHS:** None above reporting de minimus.  
**CERCLA/SARA Section 311/312:** Fire, Immediate Health Hazard, Delayed Health Hazard  
**CERCLA/SARA 313:** None above reporting de minimus.

**California Proposition 65:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

### Canada Regulatory Information

**CEPA DSL/NDSL Status:** All components are listed on or are exempt from listing on the Domestic Substances List.  
**WHMIS hazard class:** B.3, D.2.A, D.2.B

## 16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

**Prepared by:** Dan Shaw, Product Safety and Regulatory Affairs Specialist  
For Safety and Regulatory Information contact:  
Product Safety and Regulatory Affairs,  
Rocky Hill, CT.  
860-571-5204

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Revision Date: 04/19/2006

Issue date: 04/19/2006

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product name:** ES2500, PART B  
**Product type:** Epoxy Hardener  
**Company address:**  
Henkel Corporation  
211 Franklin Street  
Olean, New York 14760

**Item No. :** EB2500  
**Region:** United States  
**Contact Information:**  
Telephone: 716.372.6300  
Emergency Telephone: 860.571.5100  
Internet: www.electronics.henkel.us

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous components</u>	<u>%</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER</u>
Bis (2-ethylhexyl) phthalate 117-81-7	30-60	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA	None
Nonylphenol 84852-15-3	10-30	None	None	None
N-(2-Aminoethyl)piperazine 140-31-8	10-30	None	None	None
Triethylenetetramine 112-24-3	5-10	None	None	1 ppm, skin TWA, (WEEL)
Aminoethylethanolamine 111-41-1	1-5	None	None	None
Hydroxyethylpiperazine 103-76-4	1-5	None	None	None
Diethylene triamine 111-40-0	1-5	1 ppm TWA (skin)	None	None

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

##### HMIS:

**Physical state:** Liquid  
**Color:** Black  
**Odor:** Aromatic

**HEALTH:** 3\*  
**FLAMMABILITY:** 1  
**PHYSICAL HAZARD:** 0  
**Personal Protection:** See Section 8

**DANGER:** CAUSES EYE, SKIN AND RESPIRATORY TRACT BURNS.  
MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION.

**Relevant routes of exposure:** Inhalation, Skin contact, Eye contact, Ingestion

#### Potential Health Effects

**Inhalation:** Respiratory tract burns. Severe respiratory tract irritation. May cause allergic respiratory reaction.  
**Skin contact:** This material is corrosive to eyes and skin. Brief contact may cause chemical burns. May cause allergic skin reaction.  
**Eye contact:** Contact can cause pain, burns, necrosis, permanent injury, blindness.

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**Ingestion:** Ingestion causes burns of the upper digestive and respiratory tracts. Danger of perforation of the esophagus and the stomach.

**Existing conditions aggravated by exposure:** Eye, skin, and respiratory disorders.

**See Section 11 for additional toxicological information.**

#### 4. FIRST AID MEASURES

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Skin contact:** Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse.

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.

**Ingestion:** DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

#### 5. FIRE-FIGHTING MEASURES

**Flash point:** 118.33°C (245°F) Closed cup

**Autoignition temperature:** Not determined

**Flammable/Explosive limits-lower %:** Not available

**Flammable/Explosive limits-upper %:** Not available

**Extinguishing media:** Foam, dry chemical or carbon dioxide.

**Special fire fighting procedures:** Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Unusual fire or explosion hazards:** None

**Hazardous combustion products:** Toxic fumes. Ammonia. Oxides of carbon, oxides of nitrogen, irritating organic vapors.

#### 6. ACCIDENTAL RELEASE MEASURES

**Environmental precautions:** Prevent product from entering drains or open waters.

**Clean-up methods:** Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable and closed containers for disposal.

## 7. HANDLING AND STORAGE

<b>Handling:</b>	Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Avoid all ignition sources in storing and handling this material. Keep cool in accordance with label instructions. Wear protective equipment when handling, For operations where eye or face contact could occur, provide safety shower and eyewash fountain.
<b>Storage:</b>	Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.
<b>Incompatible products:</b>	Refer to Section 10.

For information on product shelf life contact Henkel Customer Service at 1-716-372-6300.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering controls:</b>	Use local exhaust ventilation if the potential for airborne exposure exists.
<b>Respiratory protection:</b>	Use NIOSH approved respirator if there is potential to exceed exposure limit(s).
<b>Skin protection:</b>	Neoprene, Butyl-rubber, or nitrile-rubber gloves. Cover as much of the exposed skin area as possible with appropriate clothing.
<b>Eye/face protection:</b>	Chemical splash goggles or safety glasses with side shields. In a splash hazard environment, chemical goggles should be used in combination with a full face shield. An eyewash and safety shower should be nearby and ready for use.

See Section 2 for exposure limits.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquid
<b>Color:</b>	Black
<b>Odor:</b>	Aromatic
<b>Vapor pressure:</b>	0.2 mmHg
<b>pH:</b>	Alkaline
<b>Boiling point/range:</b>	Not determined
<b>Melting point/range:</b>	Not available
<b>Specific gravity:</b>	1.0
<b>Vapor density:</b>	Less than 1.0
<b>Evaporation rate:</b>	Less than 0.1
<b>Solubility in water:</b>	Soluble.
<b>Partition coefficient (n-octanol/water):</b>	Not available
<b>VOC content:</b>	<1%; <10 grams/liter (estimated value for resin and hardener mixed together)

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions
<b>Hazardous polymerization:</b>	None under normal processing.
<b>Hazardous decomposition products:</b>	Carbon oxides. Nitrogen oxides (nox). Ammonia.
<b>Incompatibility:</b>	Strong acids and oxidizing agents. This product slowly corrodes copper, aluminum, zinc and galvanized surfaces.
<b>Conditions to avoid:</b>	Storage with incompatible materials. Keep away from open flames, hot surfaces and sources of ignition.

## 11. TOXICOLOGICAL INFORMATION

### Carcinogen Status

Item No. : EB2500

Product name: ES2500, PART B



Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Bis (2-ethylhexyl) phthalate 117-81-7	Suspect Carcinogen	No	Yes
Nonylphenol 84852-15-3	No	No	No
N-(2-Aminoethyl)piperazine 140-31-8	No	No	No
Triethylenetetramine 112-24-3	No	No	No
Aminoethylethanolamine 111-41-1	No	No	No
Hydroxyethylpiperazine 103-76-4	No	No	No
Diethylene triamine 111-40-0	No	No	No

#### Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Bis (2-ethylhexyl) phthalate 117-81-7	Some evidence of carcinogenicity, Reproductive, Liver, Kidney, Developmental, Central nervous system
Nonylphenol 84852-15-3	Irritant, Corrosive
N-(2-Aminoethyl)piperazine 140-31-8	Irritant, Corrosive, Allergen
Triethylenetetramine 112-24-3	Allergen, Developmental, Irritant, Mutagen, Corrosive
Aminoethylethanolamine 111-41-1	Allergen, Irritant
Hydroxyethylpiperazine 103-76-4	Allergen, Central nervous system, Irritant
Diethylene triamine 111-40-0	Allergen, Eyes, Irritant

### 12. ECOLOGICAL INFORMATION

Ecological information: Not available

### 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

**Recommended method of disposal:** Dispose of in accordance with Federal, State and local regulations.

**EPA hazardous waste number:** Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be tested to determine the applicable EPA hazardous waste numbers.

### 14. TRANSPORT INFORMATION

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

**U.S. Department of Transportation Ground (49 CFR):**

**Proper shipping name:** CORROSIVE LIQUID, N.O.S. ( Aminoethylpiperazine , Nonylphenol )  
**Hazard class or division:** 8  
**Identification number:** UN 1760  
**Packing group:** II  
**Exceptions:** Consumer Commodity ORM-D (Not more than 1 L)  
**DOT reportable quantity (lbs):** Diethylhexyl phthalate (CAS# 117-81-7) is reportable at 100 pounds (45.4 kg.); therefore, this product has an RQ of approx. 272 pounds ( approx. 103 kilograms).  
**Marine pollutant:** Nonylphenol.

**International Air Transportation (ICAO/IATA):**

**Proper shipping name:** CORROSIVE LIQUID, N.O.S. ( Aminoethylpiperazine , Nonylphenol )  
**Hazard class or division:** 8  
**Identification number:** UN 1760  
**Packing group:** II

Item No. : EB2500

Product name: ES2500, PART B

**WaterTransportation (IMO/IMDG):**

**Proper shipping name:** CORROSIVE LIQUID, N.O.S. ( Aminoethylpiperazine , Nonylphenol )  
**Hazard class or division:** 8  
**Identification number:** UN 1760  
**Packing group:** II  
**Marine pollutant:** Nonylphenol

**15. REGULATORY INFORMATION**

**United States Regulatory Information**

**TSCA 8 (b) Inventory Status:** All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.  
**TSCA 12 (b) Export Notification:** None.

**CERCLA/SARA Section 302 EHS:** None above reporting de minimus.  
**CERCLA/SARA Section 311/312:** Immediate Health Hazard, Delayed Health Hazard  
**CERCLA/SARA 313:** This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Bis (2-ethylhexyl) phthalate (CAS#117-81-7).

**California Proposition 65:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**Canada Regulatory Information**

**CEPA DSL/NDSL Status:** All components are listed on or are exempt from listing on the Domestic Substances List.  
**WHMIS hazard class:** E, D.2.A, D.2.B

**16. OTHER INFORMATION**

**This material safety data sheet contains changes from the previous version in sections:** New Material Safety Data Sheet format.

**Prepared by:** Dan Shaw, Product Safety and Regulatory Affairs Specialist  
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**DISCLAIMER:** The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation does not assume responsibility for any results obtained by persons over whose methods Henkel Corporation has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of Henkel Corporation's products. In light of the foregoing, Henkel Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation further disclaims any liability for consequential or incidental damages of any kind, including lost profits.