



Revision Number: 004.0

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**1. PRODUCT AND COMPANY IDENTIFICATION**

<b>Product name:</b>	<b>Ablefilm ECF561E-1-004, 12x12</b>	<b>IDH number:</b>	1199617
<b>Product type:</b>	Conductive dry film product	<b>Region:</b>	United States
<b>Restriction of Use:</b>	None identified	<b>Contact information:</b>	
<b>Company address:</b>	Henkel Electronic Materials LLC 14000 Jamboree Road Irvine, CA 92606	Telephone:	1.888.9.HENKEL (1.888.943.6535)
		MEDICAL EMERGENCY Phone:	Poison Control Center 1-877-671-4608 (toll free) or 1-303-592-1711
		TRANSPORT EMERGENCY Phone:	CHEMTREC 1-800-424-9300 (toll free) or 1-703-527-3887
		Internet:	www.henkel.com/electronics

**2. HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

**DANGER:** CAUSES SKIN IRRITATION.  
MAY CAUSE AN ALLERGIC SKIN REACTION.  
CAUSES SERIOUS EYE IRRITATION.  
MAY CAUSE RESPIRATORY IRRITATION.  
MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
EYE IRRITATION	2A
SKIN SENSITIZATION	1
REPRODUCTIVE TOXICITY	1B
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	3

**PICTOGRAM(S)**



**Precautionary Statements**

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust or fumes. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear eye and face protection. Wear protective gloves. Use personal protective equipment as required.

**Response:** IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical attention. Take off contaminated clothing.

**Storage:** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal:** Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Silver	7440-22-4	60 - 100
Modified epoxy resin	Proprietary	10 - 30
Glass, oxide, chemicals	65997-17-3	10 - 30
Epoxy resin	Proprietary	1 - 5
4,4'-Isopropylidenediphenol	80-05-7	0.1 - 1

\* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

### 4. FIRST AID MEASURES

<b>Inhalation:</b>	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.
<b>Skin contact:</b>	Remove contaminated clothing and footwear. Immediately flush skin with plenty of water (using soap, if available). If symptoms develop and persist, get medical attention. Wash clothing before reuse.
<b>Eye contact:</b>	Immediately flush eyes with plenty of water for at least 15 minutes. If symptoms develop and persist, get medical attention.
<b>Ingestion:</b>	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If symptoms develop and persist, get medical attention.
<b>Symptoms:</b>	See Section 11.

### 5. FIRE FIGHTING MEASURES

<b>Extinguishing media:</b>	Water spray (fog), foam, dry chemical or carbon dioxide.
<b>Special firefighting procedures:</b>	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. Cartridge respirators do not provide adequate protection for fire fighters or exotherm mitigation.
<b>Unusual fire or explosion hazards:</b>	May liberate large quantities of dense, foul-smelling smoke which may contain unidentified toxic gasses.
<b>Hazardous combustion products:</b>	Oxides of carbon and nitrogen, aldehydes, acids and undetermined organics.

### 6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

<b>Environmental precautions:</b>	Do not let product enter drains.
<b>Clean-up methods:</b>	Wear suitable protective clothing, gloves and eye/face protection. Sweep up or gather material and place in appropriate container for disposal.

## 7. HANDLING AND STORAGE

**Handling:** Use only with adequate ventilation. Wear suitable protective clothing, gloves and eye/face protection. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

**Storage:** Store in a cool, dry area.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Silver	0.1 mg/m3 TWA Dust and fume.	0.01 mg/m3 PEL (as Ag)	None	None
Modified epoxy resin	None	None	None	None
Glass, oxide, chemicals	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	15 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.	None	None
Epoxy resin	None	None	None	None
4,4'-Isopropylidenediphenol	None	None	None	None

**Engineering controls:** Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination.

**Respiratory protection:** Use a NIOSH approved respirator if ventilation is inadequate.

**Eye/face protection:** Safety goggles or safety glasses with side shields.

**Skin protection:** Use impermeable gloves and protective clothing as necessary to prevent skin contact.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Solid, Film
<b>Color:</b>	Gray
<b>Odor:</b>	Slight
<b>Odor threshold:</b>	Not available.
<b>pH:</b>	Not available.
<b>Vapor pressure:</b>	Not applicable
<b>Boiling point/range:</b>	Not available.
<b>Melting point/ range:</b>	Not determined
<b>Specific gravity:</b>	3.3
<b>Vapor density:</b>	Not available.
<b>Flash point:</b>	> 100 °C (> 212°F) ; Product is a solid.
<b>Flammable/Explosive limits - lower:</b>	Not available.
<b>Flammable/Explosive limits - upper:</b>	Not available.
<b>Autoignition temperature:</b>	Not available.
<b>Evaporation rate:</b>	Not determined
<b>Solubility in water:</b>	Insoluble
<b>Partition coefficient (n-octanol/water):</b>	Not determined
<b>VOC content:</b>	< 0.1 %
<b>Viscosity:</b>	Not available.
<b>Decomposition temperature:</b>	Not available.

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under normal conditions of storage and use.
<b>Hazardous reactions:</b>	None under normal processing. Polymerization may occur at elevated temperature or in the presence of incompatible materials.
<b>Hazardous decomposition products:</b>	Oxides of carbon and nitrogen, aldehydes, acids and undetermined organics.
<b>Incompatible materials:</b>	Keep away from strong oxidizing agents, strong Lewis or mineral acids.
<b>Reactivity:</b>	Not available.
<b>Conditions to avoid:</b>	Elevated temperatures.

## 11. TOXICOLOGICAL INFORMATION

**Relevant routes of exposure:** Skin, Inhalation, Eyes

### Potential Health Effects/Symptoms

<b>Inhalation:</b>	Inhalation of processing fumes may be harmful. May cause respiratory tract irritation.
<b>Skin contact:</b>	Causes skin irritation. May cause allergic skin reaction.
<b>Eye contact:</b>	Causes serious eye irritation.
<b>Ingestion:</b>	Not expected under normal conditions of use.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Silver	Oral LD50 (RAT) > 5,000 mg/kg Dermal LD50 (RAT) > 2,000 mg/kg	Allergen, Eyes, Irritant, Respiratory, Skin
Modified epoxy resin	None	Irritant, Allergen
Glass, oxide, chemicals	None	Allergen, Respiratory
Epoxy resin	None	Irritant, Allergen
4,4'-Isopropylidenediphenol	Oral LD50 (RAT) = 4,100 mg/kg Oral LD50 (RAT) = 3,300 mg/kg	Allergen, Blood, Irritant, Kidney, Reproductive, Spleen

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Silver	No	No	No
Modified epoxy resin	No	No	No
Glass, oxide, chemicals	No	No	No
Epoxy resin	No	No	No
4,4'-Isopropylidenediphenol	No	No	No

## 12. ECOLOGICAL INFORMATION

**Ecological information:** Not available.

## 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

**Recommended method of disposal:** Follow all local, state, federal and provincial regulations for disposal.  
**Hazardous waste number:** D011. Silver. This product may contain traces of: D018. Benzene.

## 14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

### 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:** Environmentally hazardous substance, solid, n.o.s.  
**Hazard class or division:** 9  
**Identification number:** UN 3077  
**Packing group:** III

### Water Transportation (IMO/IMDG)

**Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
**Hazard class or division:** 9  
**Identification number:** UN 3077  
**Packing group:** III

## 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 above reporting de minimis  
**CERCLA/SARA Section 302 EHS:** None above reporting de minimis  
**CERCLA/SARA Section 311/312:** Immediate Health, Delayed Health  
**CERCLA/SARA Section 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). Silver (CAS# 7440-22-4).  
**CERCLA Reportable quantity:** Silver (CAS# 7440-22-4) 1,000 lbs. (454 kg)  
**California Proposition 65:** This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

### Canada Regulatory Information

**CEPA DSL/NDSL Status:** Contains one or more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environment Canada. They may be imported into Canada in limited quantities. Please contact Regulatory Affairs for additional details.

## 16. OTHER INFORMATION

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

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