



ISO 9001-2015 Certified

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# TECHNICAL BULLETIN

## EPOXIBOND™ EB-485 THERMALLY CONDUCTIVE ADHESIVE

**EB-485** is a highly versatile epoxy adhesive formulated for semiconductor industry. An easy to-spread thixotropic paste, it offers high heat transfer, low shrinkage and a coefficient of thermal expansion comparable to that of copper and aluminum. This adhesive is principally used to form thermally conductive joints in fabricated heat sinks and between heat sinks and power devices. Typical applications include fabricating heat sinks, bonding semiconductors and transistors to heat sinks and general purpose bonding of electronic components.

### Key Feature and Benefits:

- Thixotropic paste – no sag during cure
- High Thermal Conductivity – very good heat dissipation from bonded parts
- Various Hardeners to choose – Room Temperature or Heat cure
- Low thermal expansion
- High temperature resistance

### TYPICAL HANDLING PROPERTIES:

Hardener	EH-9	EH-21LP	EH-6
Mix ratio by weight, (Adhesive/Hardener)	100/3.5	100/7.3	100/4
Compound viscosity at 25°C, cp	Paste	Paste	Paste
Mixed viscosity at 25°C, cp	Paste	Paste	Paste
Pot life at 25°C (100 gram)	30-45 min	60-120 min	3-5 hrs
Recommended Cure	Gel @ RT+ 2 hrs @ 70°C	Gel @ RT+ 2 hrs @ 70°C	2-4 hrs @ 100°C
Alternate Cure	24 hrs @ 25°C	24 hrs @ 25°C	1-2 hrs @ 125°C

### Benefits of Curing Agents

Hardener	EH-9	EH-21LP	EH-6
	General purpose with good chemical resistance and high physical strength.	Low viscosity, long pot life, and ultra clear. Offers superior thermal shock and impact resistance. Excellent low temperature properties.	Room temperature stable when mixed. Excellent chemical resistance and good physical and chemical properties at high temperatures.

### TYPICAL CURED PROPERTIES AFTER RECOMMENDED CURE:

	<b>EH-9</b>	<b>EH-21LP</b>	<b>EH-6</b>
Color	Black	Black	Black
Specific Gravity	2.3	2.2	2.3
Hardness, Shore D	90	90	94
Lap shear strength to aluminum, psi	2300	2200	1900
Water Absorption (24 hr immersion at RT), %	0.01	0.007	0.006
Thermal Conductivity, W/m <sup>2</sup> K	1.4	1.2	1.4
Glass Transition Temperature, °C	100	65	120
Coefficient of Thermal Expansion, 10 <sup>-6</sup> /°C From -55°C to 25°C	26	28	29
Service Temperature use	-40°C to 130°C	-65°C to 105°C	-55°C to 155°C
Dielectric Strength, Volts/mil	440	440	460
Dielectric Constant at 1 kHz	5.8	5.8	5.8
Dissipation Factor at 1 kHz	0.01	0.01	0.02
Volume Resistivity, ohm-cm	2x10 <sup>15</sup>	8x10 <sup>15</sup>	1x10 <sup>16</sup>

### **INSTRUCTIONS FOR USE:**

Mix contents thoroughly each time before removing material. To each 100 grams of Epoxibond-485 add appropriate amount of Hardener and mix it well preferably using a mechanical mixer. Vacuum degasses for about five minutes to remove any dissolved or entrapped air. Proceed with the bonding application and cure as recommended.

### **FOR INDUSTRIAL USE ONLY:**

These materials are intended for industrial use only, and the practices of good housekeeping, safety and cleanliness should be followed before, during and after use.

### **WARNING!**

Although the system contains low volatility materials, care should be taken in handling. Adequate ventilation of work place and ovens is essential. These materials may cause injury to the skin following prolonged or repeated contact and dermatitis in susceptible individuals. In case of skin contact, wash thoroughly with soap and water. For eyes, flush immediately with plenty of water for at least 10 minutes and seek medical attention. Refer to Material Safety Data Sheet for additional health and safety information.

### **SHELF LIFE:**

The shelf life of these materials is 12 months when stored in unopened containers at an average temperature of 25°C.

### **DISCLAIMER:**

All data given here is offered as a guide to the use of these materials and not as a guarantee of their performance. The user should evaluate their suitability for own purposes. Properties are typical and should not be used in preparing specifications. Statements are not to be construed as recommendations to infringe any patent.