



ISO-9001-2008 Certified

1 Industrial Circle, Lincoln, RI 02865, USA  
Phone: (401) 726-4500 ■ Fax: (401) 726-4502  
Email: [info@epoxyset.com](mailto:info@epoxyset.com) ■ Web: [www.epoxyset.com](http://www.epoxyset.com)

# TECHNICAL BULLETIN

## EPOXIBOND 403-1 ONE PART THERMALLY CONDUCTIVE ADHESIVE

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**EB-403-1** is a single component, thermally conductive, electrically insulating, epoxy adhesive for semiconductor, hybrid IC, and electronic circuit assembly applications.

It is a thixotropic paste and a non-sagging adhesive. It is also useful for deposition methods like dispensing, printing, or hand held processes.

### Suggested Applications:

#### **Hybrid:**

- Staking SMDs onto the PCB for extra mechanical support; insulation layer between 2 contact pads of caps and resistors.
- Heat sinking devices on ceramic PCB and PCB to external case; adhesion to Si, Au, kovar, Al-N, BT
- Reinforcing and extra mechanical support for wire bond integrity.

#### **Electronics:**

- Bonding passive devices such as inductor coils, ferrites, motors, connectors, and various SMDs
- Adhesion to FR4 and common PCB substrates and housings

### TYPICAL HANDLING PROPERTIES:

Epoxybond	403-1
Viscosity	>800,000
Pot life at 80°C, minutes	30
Shelf life at 25°C, months	4

**Recommended Cure**    **1 hr/100°C+1 hr/150°C**  
**Alternate Cure**        **30 min/150°C**

### TYPICAL CURED PROPERTIES:

(Tested @ 25°C unless otherwise indicated)

Color	Black
Specific Gravity	2.1
Hardness, Shore D	90
Lap shear strength to aluminum, psi	
At 25°C	2620
At 100°C	2400
Water Absorption (24 hr at RT), %	0.1
Thermal Conductivity, W/m <sup>2</sup> K	1.8
Glass Transition Temperature, °C	145
Service Temperature, °C	-55-220
Coefficient of Thermal Expansion, 10 <sup>-6</sup> /°C	
Below Tg	28
Above Tg	>140
Dielectric Strength, Volts/mil	460
Dielectric Constant at 1 kHz	5.3
Dissipation Factor at 1 kHz	0.04
Volume Resistivity, ohm-cm	6x10 <sup>15</sup>

### INSTRUCTIONS FOR USE:

1. Use dispensing equipment for best results.
2. For small applications, apply the product using a syringe or clean spatula.
3. Avoid air entrapment to obtain optimum cured properties.
4. Proceed with the bonding application and cure as recommended.

### FOR INDUSTRIAL USE ONLY:

This material is 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 this material is 4 months when stored in unopened containers at 25°C or below temperature. Storage at 0°C to 5°C will improve the shelf life of the product.

**DISCLAIMER:** All data given here is offered as a guide to the use of the material 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.