



**ISO-9001-2015 Certified**

# TECHNICAL BULLETIN

## EPOXIBOND EB- 411HP ONE-COMPONENT STRUCTURAL EPOXY ADHESIVE

**EB-411HP** is one component, aluminum filled, heat-curing epoxy adhesive which offers excellent thermal stability and high bond strength to metals, glass and many other substrates in the 120°C to 180°C temperature range. This low temperature (125°C) curing adhesive has very good water, solvent and chemical resistance.

**EB-411HP** is formulated to meet the requirements of Federal Specification MMM A-132 for Type II heat resistant structural adhesive.

### TYPICAL UNCURED PROPERTIES:

Color	Metallic gray
Viscosity at 25°C, cp	Paste
Density, (g/mL)	1.4
Pot life @ 125°C (10 grams)	15-20 minutes
Shelf Life At 25°C	3 month

<b>Recommended Cure:</b>	<b>45 minutes/125°C</b>
<b>Or</b>	<b>10 minutes/150°C</b>
<b>Or</b>	<b>5 minutes/175°C</b>

### TYPICAL CURED PROPERTIES:

(Tested @ 25°C unless otherwise indicated)

Color	Gray
Hardness, Shore D	84
Lap Shear Strength (aluminum to aluminum), psi	
At -55°C	3000
At 25°C	4500
At 125°C	1500
At 150°C	600
T-Peel Strength (AL to AL), pli	5
Thermal Conductivity, W/m <sup>2</sup> K	1.5
Service Temperature, °C	-55-230
Glass Transition Temp. (Tg), °C	145
Coefficient of Thermal Expansion, 10 <sup>-6</sup> /°C	
Below Tg	47
Dielectric Constant at 1kHz	10.5
Dissipation Factor at 1kHz	0.126
Volume Resistivity, ohm-cm	3x10 <sup>13</sup>

### DIRECTION FOR USE:

1. Warm product to room temperature before opening container to restore proper consistency and to prevent moisture condensation on adhesive surface.
2. Surfaces must be clean, dry and free from paint, rust, oil, wax or grease. Sanding with abrasive paper followed by solvent wiping can clean surfaces.
3. For maximum bond strength, apply the adhesive evenly to both surfaces to be joined by knife coat, trowel, extrusion or high-pressure injection to produce a bondline thickness of 2-5 mils.
4. Join the adhesive coated surfaces and cure as recommended.
5. Keep parts from moving during cure. Contact pressure is necessary.
6. Use gloves to minimize skin contact. Avoid the use of solvents for cleaning hands.

### STORAGE AND HANDLING:

Store at 25°C or below. Storage at higher temperatures can have detrimental effects on the adhesive.

**CAUTION:** EB 411HP is heat sensitive. Storage above 55°C may cause an exothermic reaction resulting in evolution of excessive heat and noxious fumes.

### FOR INDUSTRIAL USE ONLY! WARNING!

Causes eye and skin irritation. Prevent contact with eyes and skin. In case of eye contact, immediately wash eyes with plenty of water for at least 10 minutes and call a physician. For skin contact, wash with soap and water. Avoid breathing vapors. Use only in well ventilated areas. Avoid inhalation and eye contact with dust from grinding operations on the cured material. Curing ovens must be vented to the outdoors. See Safety Data Sheet (SDS) for detailed health and safety information.