

Pure Diamond, Ultra-high Thermally Conductive,  
Electrically Insulating Epoxy Adhesive

*Technical Product Bulletin*

**PRODUCT DESCRIPTION:**

AA-SUPERTHERM 05 is a thixotropic (smooth paste) Pure Diamond ultra-high thermally conductive epoxy two-part adhesive that develops strong, durable, high-impact bonds at room temperature which improve heat transfer while maintaining electrical insulation.

AA-SUPERTHERM 05 bonds readily to itself, and to metals, silica, alumina, sapphire and other ceramics, glass, plastics and many other materials, because its coefficient of thermal expansion provides a good match for those materials over a fairly wide temperature range.

Fully cured AA-SUPERTHERM 05 provides excellent resistance to salt solutions, mild acids and alkalis, and many other chemicals including petroleum solvents, lubricating oils, and alcohol.

AA-SUPERTHERM 05 passes NASA's outgassing specification making it ideal for demanding space applications.

**MISC PROPERTIES:**

<b>CTE, linear</b>	14.4 $\mu\text{in/in-}^\circ\text{F}$ @ RT
<b>Hardness, Shore D</b>	90
<b>Izod Impact, Notched</b>	0.490 ft-lb/in

**ELECTRICAL PROPERTIES:**

<b>Volume Resistivity</b>	2.10e+15 ohm-cm
	3.20e+13 ohm-cm @ 167 $^\circ\text{F}$ / @ 75 $^\circ\text{C}$
<b>Dielectric Constant</b>	5.9 @ 1000 Hz
<b>Dielectric Strength</b>	410kV/in, 16.1 kV/mm
<b>Dissipation Factor</b>	0.010@Frequency 1000 Hz

**PRODUCT DESCRIPTION:**

<b>Appearance</b>	Gray
<b>Cure Type</b>	Heat cure or Room Temperature
<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Strong</li> <li>• Durable</li> <li>• high-impact bonds</li> <li>• Fully cured</li> <li>• Excellent resistance to many chemicals</li> </ul>
<b>Mix Ratio by weight</b>	100:100 / Resin:Hardener
<b>Substrates</b>	metals, silica, alumina, sapphire and other ceramics, glass, plastics and many other materials
<b>Typical Application</b>	Extremely sensitive thermal cooling applications

**THERMAL PROPERTIES:**

<b>Thermal Conductivity</b>	7.36 BTU-in/hr-ft <sup>2</sup> - $^\circ\text{F}$ 1.06 W/m-K
<b>Glass Transition Temp, Tg</b>	48.0 $^\circ\text{C}$ , 118 $^\circ\text{F}$
<b>Maximum Service Temperature, Air</b>	115 $^\circ\text{C}$ , 239 $^\circ\text{F}$
<b>Minimum Service Temperature, Air</b>	-70.0 $^\circ\text{C}$ , -94.0 $^\circ\text{F}$

**GENERAL INFORMATION:**

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

**HOW TO USE:**

1. Carefully clean and dry all surfaces to be bonded.
2. Apply AA-SUPERTHERM 05 completely mixed adhesive to the prepared surfaces, and gently press these surfaces together. Contact pressure is adequate for strong, reliable bonds; however, maintain contact until adhesive is completely cured.
3. Some separation of components is common during shipping and storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use.
4. Some ingredients in this formulation provided may crystallize when subjected to low temperature storage. A gentle warming cycle of 52 $^\circ\text{C}$  for 30 minutes prior to mixing components may be necessary. Crystallized epoxy components do not react as well as liquid components and should be re-dissolved prior to use for best results.

**CURE SCHEDULE:**

<b>2 - 4 Hours</b>	@ 65 $^\circ\text{C}$
<b>24 Hours</b>	@ 25 $^\circ\text{C}$

**UNCURED PROPERTIES:**

<b>Viscosity @ 25 <math>^\circ\text{C}</math>, 77.0 <math>^\circ\text{F}</math></b>	33,000 Cp @Temperature 77.0 $^\circ\text{F}$ , 25.0 $^\circ\text{C}$
<b>Specific Gravity, mixed</b>	2.30 g/cc
<b>Pot Life</b>	45 minutes

**AVAILABILITY:**

This epoxy can be supplied in many different packages.

**Atom Adhesives**

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