



JARO-343 A & B

Thermally Conductive Epoxy, Conformal Coating

JARO-343 A & B is a unique dielectric coating that offers excellent heat transfer while providing exceptionally high electrical isolation. It is resistive to most chemicals for short time exposure. It is recommended for coating printed circuit boards and especially heatsink assemblies. The coating effectively distributes heat throughout the entire coated surface and can be easily applied using conventional spray equipment. Thicknesses ranging from 1 to 6 mils can be applied in one coat. However, multiple coats are recommended when thickness of 5 mils or more are needed. (See curing instructions) JARO-343 is opaque so it offers excellent hiding power, cures dimple free and provides excellent edge coverage. It meets the requirements of MIL-E-5272, will not peel or blister when exposed to 240 hours at 50' C and 96% relative humidity or 3 minutes immersion in a heat solder pot @ 330' C.

Specifications:

UNCURED

Specific Gravity @ 25' C 1.3 to 1.4
Viscosity @ 25' C, cps (uncatalyzed) 100 to 300
Standard Color Black
Shelf Life 12 months

PHYSICAL PROPERTIES

Tensile Strength @ 25' C psi 8,300
Tensile Elongation: % @ yield 1.8 to 2.0
Compressive Strength @ 25' C, psi 26,540
Izod Impact: ft lbs/in of notch 0.35
Heat Distortion: 'C 130
Water Absorption: %, 10 days @ 25' C 0.2
Linear Shrinkage: in/in 0.003
Service Temperature: 'C continuous -65 to 130
Service Temperature: 'C intermittent -100 to 230
Hardness: Shore D 88 to 90

THERMAL PROPERTIES

Thermal Conductivity: $\text{cal/sec/cm}^2 / \text{'C/cm} \times 10^{-4}$ 26.2
Thermal Conductivity: BTU/ft² /hr/'F/in 7.7
Thermal Resistance: 'C in/watt 35.6
Coefficient of Thermal Expansion: in/in/'c $\times 10^{-6}$ 24

ELECTRICAL PROPERTIES

Volume Resistivity @ 25' C, ohm-cm 10^{16}
Dielectric Constant @ 25' C, 100 KC 5.6
Dissipation Factor @ 25' C, 100KC 0.02
Dielectric Strength: .003" thickness, volts/mil 1,000 to 2,000
(Typical properties when cured for 2 hours @ 65' C and 4 hours @ 135' C)



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JARO-343 COMPARED WITH HARDCOAT, MICA and MYLAR:

- 1) Less than one third the cost of Hardcoat
- 2) Low moisture absorption
- 3) Easily repaired if damaged
- 4) Higher thermal conductivity than Mica or Mylar in the same film thickness
- 5) Controllable film thickness
- 6) Impact and chemical resistant
- 7) No limitations as to size and shape
- 8) Can be applied to most metal surfaces
- 9) Faster transfer of heat from power devices to heatsink

SUGGESTED METHODS FOR APPLYING TRANSISTORS TO HEATSINKS:

Apply JARO-343 to mounting surface of an extruded heatsink. Cure according to schedule. Secure the transistor to the coated mounting surface with either nylon or metal fasteners. The transistor is now completely electrically insulated from the heatsink.

The transistor can also be permanently bonded to the heatsink with JARO-341, an extremely thin glue line adhesive. A typical thermal resistance value of 0.143 °C/watt can be achieved between the power device having an area of 1 square inch and a coated heatsink using a 3 mil coating and a 1 mil glue line.

SURFACE PREPARATION AND CURE:

Clean metal surfaces with solvent wash. For a majority of applications, a cure of 2 hours at 125° C (257° F) is adequate. For optimum physical and electrical properties, an initial cure of 2 hours at 65° C (149° F) followed by a post cure of 4 hours at 135° C (257° F) is required. A shorter post cure of 2 hours at 150° C (302° F) is also satisfactory, but is not recommended for colors other than black. Additional coats can be applied after an initial cure of 1 hour at 65° C (149° F) or after the coating has hardened but has not fully cured. The activated resin has a pot life of 24 hours when stored at 25° C (77° F).

MIXING INSTRUCTIONS:

Stir the JARO-343 A thoroughly in its shipping container. For best results, use a commercial paint shaker or standard drill press and mixing blade. Weigh out the desired amount in a clean container and add 3.9 parts of JARO-343 B per 100 parts of JARO-343 A by weight. (ie. 3.9 grams of JARO-343 B and 100 grams of JARO-343 A for a total mix of 103.9 grams) Mix thoroughly. No thinner is required.