

CoolTherm® EP-343 Thermally Conductive Epoxy Conformal Coating

Technical Data Sheet

CoolTherm® EP-343 coating is a two-component, dielectric epoxy coating recommended for coating printed circuit boards, semiconductors and heat sink assemblies. CoolTherm EP-343 coating efficiently distributes heat from the circuits throughout the coated surface of the board.

Features and Benefits:

High Thermal Conductivity – provides high electrical insulation with exceptionally good heat transfer.

Environmentally Resistant – provides good resistance to water and a wide variety of chemicals.

Broad Temperature Range – can be used on parts and devices that experience operating temperatures from -65°C to +130°C.

Low Viscosity – maintains low viscosity, allowing easy application with conventional spray equipment.

MIL-E-5272 Compliant – meets requirements of Military Specification MIL-E-5272.

Lasting Appearance – cured system is free of dimpling; provides good edge coverage and excellent hiding power, even in thin applications.

Application:

Surface Preparation – Thoroughly clean metal surfaces with a solvent wash. Untreated copper and aluminum, as well as nickel and stainless steel, should be primed with an epoxy metal primer prior to coating application.

Mixing – Thoroughly stir each component within its shipping container to ensure uniform dispersion. Use of power mixing equipment is recommended. Transfer amount of resin needed to a clean container and add hardener at a 100:3.9 ratio, resin to hardener by weight. No dilution is needed. Thoroughly mix components before use.

Applying – Apply coating by spray methods. Thicknesses ranging from 1-6 mils can be sprayed in one application. Greater thicknesses require partial oven curing between applications.

Curing – Allow coating to cure for 2 hours at 125°C. For optimum physical and electrical properties, an initial cure of 2 hours at 65°C followed by a post cure of 4 hours at 135°C is required.

This time-at-temperature profile refers to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Additional coats can be applied after an initial cure of 1 hour at 65°C, or after the coating has hardened but not fully cured.

Typical Properties*

	EP-343 Resin	EP-343 Hardener	Mixed
Appearance	Black Liquid	Amber Liquid	Black Liquid
Viscosity, cP @ 25°C	65	55	55
Specific Gravity	1.41	0.99	1.35
Working Life, hour @ 25°C	–	–	24

*Data is typical and not to be used for specification purposes.

Typical Cured Properties**

Thermal Conductivity, W/m·K Hot Disc Transient Method, ISO 22007-2	1.1
Coefficient of Linear Thermal Expansion, ppm/°C ASTM C 864	24
Glass Transition Temperature (T _g), °C	106
Hardness Shore D	90
Tensile Strength, MPa (psi)	57.22 (8300)
Elongation at Break, %	1.9
Moisture Absorption, % 10 days @ 25°C	0.2
Volume Resistivity, ohm-cm @ 25°C ASTM D 257	1 x 10 ¹⁶
Dielectric Strength, kV/mm (V/mil) 0.003" thickness, ASTM D 149	59 (1500)
Dielectric Constant @ 25°C 100 kHz, ASTM D 150	5.6
Dissipation Factor @ 25°C 100 kHz, ASTM D 150	0.02

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Cure schedule of 2 hours @ 65°C followed by 4 hours @ 135°C.

Shelf Life/Storage:

Shelf life is one year for CoolTherm EP-343 resin and two years for CoolTherm EP-343 hardener when stored at 25°C in original, unopened container.

Cautionary Information:

Before using this or any Parker Lord product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Values stated in this technical data sheet represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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Parker Lord
Engineered Materials Group

111 LORD Drive
Cary, NC 27511-7923
USA

phone +1 877 275 5673

www.Parker.com/APS