

COOLTHERM® EP-340 EPOXY RESIN

Technical Data Sheet

CoolTherm® EP-340 epoxy resin is a filled epoxy resin formulated for use with several Thermoset® hardeners to obtain a variety of handling and cured properties. CoolTherm EP-340 epoxy resin is designed to provide excellent thermal conductivity and outstanding mechanical properties. CoolTherm EP-340 resin offers a low coefficient of thermal expansion and is appropriate for applications where the expansion and contraction of an epoxy encapsulation system must be maintained.

Features and Benefits

Handling and cured properties of the two-component epoxy system are dependent on the hardener used with CoolTherm EP-340 epoxy resin.

Thermoset Hardener No. 18

- **Heat Resistant:** provides excellent heat resistance for a room temperature cured system.

Thermoset Hardener No. 67

- **Elevated Temperature Cure:** requires an elevated temperature cure to obtain a rigid bond.
- **High Temperature Resistant:** provides good resistance for cured system that experiences continuous operating temperature up to 155°C.
- **Non-Pigmented:** light color prevents staining of work environment.

Thermoset Hardener No. 70

- **Low Viscosity:** provides low viscosity and surface tension, enabling void-free casting without a vacuum step.
- **Convenient:** provides a working life of over one hour; appropriate for cured system that experiences operating temperature of 130°C or below.
- **UL Rated:** cured system is UL 94 HB certified.

Application

Mixing: Thoroughly stir CoolTherm EP-340 resin within its shipping container to ensure uniform dispersion. Transfer amount of resin needed to a clean container and add proper amount of hardener by weight. Thoroughly mix resin and hardener together. Automatic meter/mix/dispense equipment may be used for high volume production.

Unless a closed-chamber mechanical mixer is used, air may be introduced into epoxy system either during premixing or when catalyzing the mixture. Electrical properties of the epoxy are best when air bubbles and voids are minimized. Therefore, in extremely high voltage or other critical applications, vacuuming may be appropriate.

Applying: Apply epoxy system using automatic meter/mix/dispense equipment.

Curing: Cure time will vary depending on hardener used. Refer to cure schedule indicated below. 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.

Typical Properties*

Appearance	Black Liquid
Viscosity, cP @ 25°C	300,000
Specific Gravity	2.4

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

Typical Properties* of Resin Mixed with Hardener

	Thermoset Hardener No. 18	Thermoset Hardener No. 67	Thermoset Hardener No. 70
Mix Ratio, Resin to Hardener by Weight	100:3.5	100:6.0	100:7.0
by Volume	100:8.5	100:15.5	100:16.5
Mixed Viscosity, cP @ 25°C	60,000	7000	10,000
Working Life, minutes @ 25°C	40	60-120	100
Cure Time, hours @ 25°C	24	–	24
@ 100°C	–	2**	–

*Data is typical and not to be used for specification purposes. **Optional post cure - 2 hours @ 150°C

Cleanup: Disposable containers and utensils are recommended when working with epoxies. However, when disposable materials are impractical, uncured epoxy can be removed by cleaning equipment with solvent. Solvent-cleaned utensils should be thoroughly dried before reuse; any remaining solvent can contaminate the next mixture.

Shelf Life/Storage

Shelf life is six months when stored at 25°C in original, unopened container. The material must be periodically rotated within its container to minimize settling.

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.

Typical Cured Properties*

	Thermoset Hardener No. 18	Thermoset Hardener No. 67	Thermoset Hardener No. 70
Thermal Conductivity, W/m·K Hot Disc Transient Method, ISO 22007-2	1.5	1.5	1.5
Coefficient of Linear Thermal Expansion, ppm/°C	28	28	31
Hardness Shore D	92	95	90
Tensile Strength, MPa (psi) @ 25°C	43.42 (6300)	50.33 (7300)	64.81 (9400)
Elongation at Break, %	2.2	2.7	4.1
Moisture Absorption, % 24 hours @ 25°C	0.10	0.08	0.17
Volume Resistivity, ohm-cm @ 25°C	2 x 10 ¹⁶	5 x 10 ¹⁶	6 x 10 ¹⁵
Dielectric Strength, kV/mm (V/mil) ASTM D 149	16.1 (410)	16.1 (410)	16.9 (430)
Dielectric Constant 1 MHz @ 25°C, ASTM D 150	4.2	4.4	3.4
Dissipation Factor 1 MHz @ 25°C, ASTM D 150	0.028	0.031	0.034

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DS3299 OD 11/24 Rev.6

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