

COOLTHERM® EP-6007 BLK EPOXY RESIN

Technical Data Sheet

CoolTherm® EP-6007 BLK (BLack) resin is a ceramic-filled epoxy resin specifically formulated for use with CoolTherm or Thermoset™ hardeners to create a two-component system. This system is recommended for use as a thermally conductive, thin bondline adhesive for attaching semiconductors to heat sinks, and as a low viscosity potting and casting product for applications where thermal conductivity and non-burning properties are required.

Features and Benefits

Electrically Insulative: provides excellent high voltage insulation.

Low Exotherm: exhibits low exotherm heat rise during room temperature cure.

Broad Temperature Range: can be used on parts and devices that experience operating temperatures from -55°C to +130°C.

UL Rated: provides excellent flame retardancy; UL 94 V-0 certified; meets requirements of Military Specifications MIL T-27 and MIL I-16923.

Application

Mixing: Thoroughly stir CoolTherm EP-6007 BLK resin 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 proper amount of hardener by weight.

Thoroughly mix epoxy system. Be careful not to whip excessive air into the epoxy. If necessary, remove entrapped air by evacuating material prior to pouring.

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

Curing: Cure time will vary depending on hardener used. Refer to cure schedules indicated below. Time-at-temperature profiles refer to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for material mass, 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	15,000
Specific Gravity	1.69

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

Typical Properties* of Resin Mixed with Hardener

	CoolTherm EP-6010 Hardener	Thermoset Hardener No. 67	CoolTherm EP-6252 Hardener
Mix Ratio by Weight, Resin to Hardener	100:5.5	100:9	100:10
Working Life @ 25°C	2 hours	8 hours	45 minutes
Cure Time, hours			
@ 25°C	12-16	–	24
@ 65°C	–	16**	1
@ 100°C	–	5**	–
@ 130°C	–	3**	–

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**Cure schedule suitable for pourings of up to 227 grams in a concentrated mass.

Shelf Life/Storage

Shelf life is one year 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.

Typical Cured Properties*

	CoolTherm EP-6010 Hardener	Thermoset Hardener No. 67	CoolTherm EP-6252 Hardener
Thermal Conductivity, W/m-K Hot Disc Transient Method, ISO 22007-2	0.6	0.5	0.62
Coefficient of Thermal Expansion, ppm/°C			
alpha 1	47	42	36
alpha 2	122	140	161
Glass Transition Temperature (T _g), °C by TMA	54	94	45
Hardness Shore D	85	85	83
Tensile Strength, MPa (psi) @ 25°C	57 (8400)	67 (9800)	22 (3200)
Elongation at Yield, %	0.7	1.2	1.4
Moisture Absorption, % 10 days @ 25°C	0.4	0.4	0.8
Linear Shrinkage, in/in	0.002	0.003	0.009
Volume Resistivity, ohm-cm @ 25°C	2 x 10 ¹⁶	2 x 10 ¹⁶	1 x 10 ¹⁴
Dielectric Strength, kV/mm (V/mil) ASTM D 149	19.3 (490)	19.7 (500)	18.8 (477)
Dielectric Constant @ 25°C 125 kHz, ASTM D 150	4.3	4.4	3.7
Dissipation Factor @ 25°C 100 kHz, ASTM D 150	0.02	0.02	0.024

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Parker Lord
Engineered Materials Group
 111 LORD Drive
 Cary, NC 27511-7923
 USA
www.parker.com/APS

DS3069E OD 11/24 Rev.1

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