



EPO-TEK® H77 Black

Technical Data Sheet

For Reference Only

Thermally Conductive Epoxy

Date: February 2023
Rev: VIII
No. of Components: Two
Mix Ratio by Weight: 100 : 15
Specific Gravity: Part A: 2.53 Part B: 1.22
Pot Life: 6 Hours
Shelf Life- Bulk: One year at room temperature

Recommended Cure: 150°C / 1 Hour

NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity, others) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.
- Syringe packaging will impact initial viscosity and effective pot life, potentially beyond stated parameters.
- Black color is cosmetic only, and not intended to be photonic, spectral, or lampblack. All users need to confirm its opacity versus wavelength.

Product Description: EPO-TEK® H77 Black is a two component, thermally conductive, electrically insulating epoxy system designed for lid-sealing of hybrids found in hermetic packaging of micro-electronics. Lids can be ceramic, glass, aluminum or kovar. Package types can be plastic, metal cases, or ceramic.

Typical Properties: Cure condition: 150°C / 1 Hour Different batches, conditions & applications yield differing results.

Data below is not guaranteed. To be used as a guide only, not as a specification. * denotes test on lot acceptance basis

PHYSICAL PROPERTIES:

* Color (before cure):	Part A: Black	Part B: Amber
* Consistency:	Smooth pourable paste	
* Viscosity (23°C) @ 20 rpm:	6,000 - 12,000 cPs	
Thixotropic Index:	1.7	
* Glass Transition Temp:	≥ 75	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	38	× 10 ⁻⁶ in/in°C
Above Tg:	156	× 10 ⁻⁶ in/in°C
Shore D Hardness:	90	
Lap Shear @ 23°C:	1,523	psi
Die Shear @ 23°C:	≥ 5	Kg 1,778 psi
Degradation Temp:	405	°C
Weight Loss:		
@ 200°C:	0.15	%
@ 250°C:	0.38	%
@ 300°C:	1.47	%
Suggested Operating Temperature:	< 350	°C (Intermittent)
Storage Modulus:	904,655	psi
* Particle Size:	≤ 50	microns

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity:	0.7	W/mK
Volume Resistivity @ 23°C:	≥ 2.8 × 10 ¹³	Ohm-cm
Dielectric Constant (1KHz):	5.91	
Dissipation Factor (1KHz):	0.008	

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EPO-TEK® H77 Black Advantages & Suggested Application Notes:

- Very high temperature epoxy. Coatings on metals have been subjected to temperatures as high as 260°C without bond failure. It can also resist >300°C processes found in ceramic or hermetic packaging.
- Rheology provides a soft, smooth, flowing paste with excellent handling characteristics; low viscosity allows it to be poured or cast into shape for potting applications; compatible with automated dispense equipment, screen printing, or stamping techniques.
- Excellent solvent and chemical resistance. Excellent for harsh environments found in aircraft, under-hood automotive, medical, and petrochemical refineries such as down-hole applications.
- It provides near hermetic seals in the packaging of MEMS devices, like pressure sensors or accelerometers, packaged in TO-cans.
- Suggested for ultra-high vacuum applications.
- It can also be used for sealing of optical filter windows found in scientific OEM or sensor devices.

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