EPO-TEK® H77

Technical Data Sheet
For Reference Only
Thermally Conductive Epoxy

Date:	February 2021	
Rev:	VIII	
No. of Components:	Two	
Mix Ratio by Weight:	100 : 15	
Specific Gravity:	Part A: 2.70	Part B: 1.22
Pot Life:	6 Hours	
Shelf Life- Bulk:	One year at room temperature	

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
2-Step Cure: 100°C / 1 Hour then 120°C / 2 Hours

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.

Product Description: EPO-TEK® H77 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: Grey	Part B: Amber
* Consistency:		Smooth pourable paste	
* Viscosity (23°C) @ 20 rpm:		6,000 - 12,000	cPs
Thixotropic Index:		1.4	
* Glass Transition Temp:		≥ 80	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):			
	Below Tg:	33	x 10^{-6} in/in°C
	Above Tg:	130	x 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:		950,693	psi
* Particle Size:		≤ 50	microns

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.7	W/mK
Volume Resistivity @ 23°C:	≥ 1 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	5.64	
Dissipation Factor (1KHz):	0.006	

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EPO-TEK® H77 Advantages & Suggested Application Notes:

- High temperature epoxy. Coatings on metals have been subjected to temperatures as high as 260°C without bond failure; 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.
- Available in smaller particle size, if needed. Also available in higher viscosity for better non-flow properties. Contact techserv@epotek.com for your best match.
- Excellent solvent and chemical resistance - ideal for harsh environments found in aircraft, under-hood automotive, medical, and petrochemical refineries such as down-hole applications.
- Can provide near hermetic seals in the packaging of MEMs devices, like pressure sensors or accelerometers, packaged in TO-cans.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/.
- Suggested for ultra-high vacuum applications.
- It can also be used for sealing of optical filter windows found in scientific OEM or sensor devices.