EPO-TEK® H72

Technical Data Sheet
For Reference Only
Thermally Conductive Epoxy

Date:	February 2021		**Recommended Cure: 150°C / 1 Hour**
Rev:	IX		
No. of Components:	Two		Minimum Alternative Cure(s):
Mix Ratio by Weight:	100 : 4		*May not achieve performance properties listed below*
Specific Gravity:	Part A: 2.01	Part B: 1.02	150°C / 5 Minutes
Pot Life:	2 Hours		100°C / 20 Minutes
Shelf Life- Bulk:	One year at room temperature		80°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.
- If product crystalizes in storage, place container in warm oven until crystallization disappears. Please refer to Tech Tip #7 on website.

Product Description: EPO-TEK® H72 is a two component, high Tg, thermally conductive and electrically insulating epoxy designed for semiconductor packaging including heat sinking, hermetic sealing, and opto-electronic assemblies.

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 paste	
* Viscosity (23°C) @ 10 rpm:	20,000-27,000	cPs
Thixotropic Index:	1.2	
* Glass Transition Temp:	≥ 100	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	29	x 10^{-6} in/in°C
Above Tg:	138	x 10^{-6} in/in°C
Shore D Hardness:	88	
Lap Shear @ 23°C:	> 2,000	psi
Die Shear @ 23°C:	≥ 20	Kg 7,112 psi
Degradation Temp:	476	°C
Weight Loss:		
@ 200°C:	0.18	%
@ 250°C:	0.28	%
@ 300°C:	0.43	%
Suggested Operating Temperature:	< 350	°C (Intermittent)
Storage Modulus:	759,931	psi
* Particle Size:	≤ 50	microns

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.6	W/mK
Volume Resistivity @ 23°C:	≥ 1 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	5.40	
Dissipation Factor (1KHz):	0.009	

EPOXY TECHNOLOGY, INC.
14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782
www.epotek.com
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EPO-TEK® H72 Advantages & Suggested Application Notes:

- Suggested Applications:
  - Semiconductor/PCB: heat sinking, adhesion to Al, Cu, Al_2O_3; extra mechanical protection for SMDs.
  - Hybrids: substrate attach of ceramic circuit to package. Underfill below SMDs; staking large tantalum caps to ceramic substrates, lid sealing.
  - Opto-electronics: sensor devices, sealing ferrule or fiber optic feed through, replacement of eutectic lid seal.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/.
- Paste-like rheology allows for application by syringe dispensing, screen printing, pin transfer or by hand.
- Built in color change - from grey to amber - when cured properly.
- Possible to be snap cured in less than 5 minutes, at relatively low temperature.
- Alumina filler allows a toughened epoxy formulation that is very robust and high temperature resistant
- Highly resistant to most chemicals and solvents.

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