EPOXY TECHNOLOGY

# EPO-TEK® H20E-HC

**Technical Data Sheet**
**For Reference Only**
*Electrically Conductive Epoxy*

| | | |
|---|---|---|
| **Date:** | November 2019 | |
| **Rev:** | X | |
| **No. of Components:** | Two | |
| **Mix Ratio by Weight:** | 1 : 1 | |
| **Specific Gravity:** | Part A: 3.44 | Part B: 4.39 |
| **Pot Life:** | 2.5 Days | |
| **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*
175°C / 30 Minutes

**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.

**Product Description:** EPO-TEK® H20E-HC is a two component, 100% solids silver-filled epoxy system designed specifically for chip bonding in microelectronic and optoelectronic applications. It is also used extensively for thermal management applications due to its high thermal conductivity. It has proven itself to be extremely reliable over many years of service and is still the conductive adhesive of choice for new applications. Also available in a single component frozen syringe. This is an increased thermal conductivity version of EPO-TEK® H20E.

**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: Silver | | Part B: Silver | |
| * Consistency: | Smooth thixotropic paste | | | |
| * Viscosity (23°C) @ 50 rpm: | | 3,500 - 6,000 | cPs | |
| Thixotropic Index: | | 3.5 | | |
| * Glass Transition Temp: | | N/A | | |
| Coefficient of Thermal Expansion (CTE): | | | | |
| Below Tg: | | 53 | $\times 10^{-6}$ in/in°C | |
| Above Tg: | | 80 | $\times 10^{-6}$ in/in°C | |
| Shore D Hardness: | | 93 | | |
| Die Shear @ 23°C: | | ≥ 5 | Kg | 1,778 psi |
| Degradation Temp: | | 372 | °C | |
| Weight Loss: | | | | |
| @ 200°C: | | 0.14 | % | |
| @ 250°C: | | 0.42 | % | |
| @ 300°C: | | 1.05 | % | |
| Suggested Operating Temperature: | | < 275 | °C (Intermittent) | |
| Storage Modulus: | | 572,750 | psi | |
| Ion Content: | $Cl^-$: | 34 ppm | $Na^+$: | 24 ppm |
| | $NH_4^+$: | 45 ppm | $K^+$: | 17 ppm |
| * Particle Size: | | ≤ 45 | microns | |

| ELECTRICAL AND THERMAL PROPERTIES: | | |
|---|---|---|
| Thermal Conductivity (150°C / 1 Hour): | 10.9 | W/mK |
| Thermal Conductivity (150°C/1 Hour+200°C/1 Hour): | 23 | W/mK |
| * Volume Resistivity @ 23°C: | ≤ 0.00008 | Ohm-cm |

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**This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.**
**EPOXY TECHNOLOGY, INC.**
**14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782**
www.epotek.com

## EPO-TEK® H20E-HC Advantages & Suggested Application Notes:

- Processing info - it can be applied by many dispensing, stamping and screen printing techniques.
    - Dispensing:  compatible with pressure/time delivery, auger screws, fluid jetting and G27 needles, in a single-component fashion.
    - Screen Printing: best using >200 metal mesh with polymer squeegee blade with 80D hardness.
    - Stamping: small dots 6 mil in diameter can be realized.
- Miscellaneous/Other notes:
    - Versatility in curing techniques including box oven, SMT style tunnel oven, heater gun, hot plate, IR, convection, or inductor coil.
- Suggested applications:
    - LED – HB LED industry; light engines for HD-TV; LCD color projection.
    - Solar, die-attach epoxy for CPV chips onto ceramic carriers; thermal epoxy for ceramic to aL finned heat sink.


**This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.**
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