

## Epoxy Technology EPO-TEK® H24 Electrically Conductive Epoxy

Category : Polymer , Thermoset , Epoxy , Epoxy, Electrically Conductive

### Material Notes:

**Product Description:** EPO-TEK® H24 is a two component, electrically and thermally conductive epoxy adhesive designed for semiconductor die attach and hybrid micro-electronics assembly. **Advantages & Application Notes:** Low density silver-filled epoxy is ideal for ultrasound and acoustical applications of electronics. Extended pot-life allows for mass production and low waste. **Suggested Applications:** Hybrid Micro-electronics: SMD and die attach on Au pads and ceramic substrates. Single step curing method of die and SMDs. **Electronics:** compatible with piezo technologies for ultrasound circuits found in medical, industrial, and petrochemical industries. **Scientific / Life Sciences:** geo-thermal, geo-seismic, infra-sound, as well as acoustical-optical circuits for interferometers and lasers. **Optical:** bright and shiny silver flake is advantageous for LED die-attach. A smooth and creamy paste allows for automated or hand dispensing, pin transfer, or screen printing application methods of manufacture. Information Provided by Epoxy Technology

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Epoxy-Technology-EPO-TEK-H24-Electrically-Conductive-Epoxy.php](http://www.lookpolymers.com/polymer_Epoxy-Technology-EPO-TEK-H24-Electrically-Conductive-Epoxy.php)

| Physical Properties | Metric               | English              | Comments |
|---------------------|----------------------|----------------------|----------|
| Specific Gravity    | 1.05 g/cc            | 1.05 g/cc            | Part B   |
|                     | 2.10 g/cc            | 2.10 g/cc            | Part A   |
| Particle Size       | <= 45 µm             | <= 45 µm             |          |
| Viscosity           | 15000 - 23000 cP     | 15000 - 23000 cP     | 10 rpm   |
|                     | @Temperature 23.0 °C | @Temperature 73.4 °F |          |

| Mechanical Properties | Metric      | English     | Comments |
|-----------------------|-------------|-------------|----------|
| Hardness, Shore D     | 76          | 76          |          |
| Tensile Modulus       | 3.34 GPa    | 485 ksi     | Storage  |
| Shear Strength        | >= 11.7 MPa | >= 1700 psi | Die      |
|                       | >= 13.8 MPa | >= 2000 psi | Lap      |

| Thermal Properties               | Metric       | English                            | Comments     |
|----------------------------------|--------------|------------------------------------|--------------|
| CTE, linear                      | 28.0 µm/m-°C | 15.6 µin/in-°F                     | Below Tg     |
|                                  | 104 µm/m-°C  | 57.8 µin/in-°F                     | Above Tg     |
| Thermal Conductivity             | 0.670 W/m-K  | 4.65 BTU-in/hr-ft <sup>2</sup> -°F |              |
| Maximum Service Temperature, Air | 250 °C       | 482 °F                             | Continuous   |
|                                  | 350 °C       | 662 °F                             | Intermittent |

| Minimum Service Temperature, Air Thermal Properties | -55.0 °C<br>Metric | -67.0 °F<br>English | Continuous<br>Comments  |
|---|--------------------|---------------------|---|
|   | -55.0 °C           | -67.0 °F            | Intermittent  |
| Glass Transition Temp, Tg                           | >= 100 °C          | >= 212 °F           | Dynamic Cure 20–200°C /ISO 25 Min;<br>Ramp -10–200°C @ 20°C/Min |
| Decomposition Temperature                           | 470 °C             | 878 °F              | Degradation Temperature   |

| Electrical Properties | Metric          | English         | Comments |
|-----------------------|-----------------|-----------------|----------|
| Volume Resistivity    | <= 0.020 ohm-cm | <= 0.020 ohm-cm |          |

| Chemical Properties              | Metric  | English | Comments |
|----------------------------------|---------|---------|----------|
| Ionic Impurities - Na (Sodium)   | 88 ppm  | 88 ppm  |          |
| Ionic Impurities - K (Potassium) | 8.0 ppm | 8.0 ppm |          |
| Ionic Impurities - Cl (Chloride) | 60 ppm  | 60 ppm  |          |

| Processing Properties | Metric               | English              | Comments          |
|-----------------------|----------------------|----------------------|-------------------|
| Cure Time             | 5.00 min             | 0.0833 hour          | Minimum Bond Line |
|                       | @Temperature 150 °C  | @Temperature 302 °F  |                   |
|                       | 10.0 min             | 0.167 hour           | Minimum Bond Line |
|                       | @Temperature 120 °C  | @Temperature 248 °F  |                   |
| 20.0 min              | 0.333 hour           | Minimum Bond Line    |                   |
| @Temperature 100 °C   | @Temperature 212 °F  |                      |                   |
| Pot Life              | 45.0 min             | 0.750 hour           | Minimum Bond Line |
|                       | @Temperature 80.0 °C | @Temperature 176 °F  |                   |
| Shelf Life            | 6.00 Month           | 6.00 Month           |                   |
|                       | @Temperature 25.0 °C | @Temperature 77.0 °F |                   |

| Descriptive Properties | Value        | Comments |
|------------------------|--------------|----------|
| Color                  | Amber        | Part B   |
|                        | Silver       | Part A   |
| Consistency            | Smooth paste |          |
| Ionic Impurities NH4   | 21 ppm       |          |

| Mix Ratio By Weight<br>Descriptive Properties | 100:5<br>Value | Comments |
|---|----------------|----------|
| Number of Components                          | Two            |          |
| Thixotropic Index                             | 1.86           |          |
| Weight Loss                                   | 0.04%          | 200°C    |
|   | 0.04%          | 250°C    |
|   | 0.1%           | 300°C    |

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