

## EP 1003

## THERMALLY CONDUCTIVE EPOXY RESIN

### ● PRODUCT DESCRIPTION

EP1003 is a two-component, high strength thermally conductive adhesive, encapsulation and potting compound. It is designed to deploy heat in electronic applications, with a measured thermal conductivity of 3 W/mK. EP1003 has high Tg (greater than 200°C according cure cycle), very low coefficient of thermal expansion (15 ppm/K), high ionic purity, and consequently recommended for encapsulation of electronic components.

### ● CURING PROPERTIES

<b>Pot Life @ 25 ± 2°C</b>	8 hr. (%50 viscosity increase)
<b>Gel Time @ 150°C</b>	8 min.
<b>    @ 120°C</b>	25 min.
<b>    @ 80°C</b>	120 min.
<b>Starting curing cycles are :</b>	
<b>    150°C</b>	60min.
<b>    175°C</b>	10min.
<small>* Lower temperatures (e.g. 110°C) with longer times are possible.</small>	<small>Note that lower cure temperature leads to lower Tg values.</small>

### ● UNCURED PROPERTIES

<b>Base</b>	Epoxy
<b>Color</b>	Gray
<b>Viscosity (cps)</b>	55000 - 65000
<b>Specific Gravity</b>	2,6gr/cm <sup>3</sup>
<b>Mix ratio</b>	100:80(by weight) / 100:88(by volume)

### ● CURED PROPERTIES

<b>Hardness Shore D</b>	94
<b>Operating Temp.</b>	-40°C to 200°C
<b>Tg</b>	180°C
<b>Young's modulus</b>	6 Gpa
<b>Thermal conductivity</b>	3W/mK
<b>Linear shrinkage during cure</b>	0.4 %
<b>Coefficient of thermal expansion @ 25°C</b>	15 ppm/K
<b>Coefficient of thermal expansion @ 200°C</b>	40 ppm/K
<b>Decomposition temperature</b>	~380 °C
<b>Breakdown voltage</b>	30 V/m
<b>Dielectric constant (1 to 100kHz) estimation</b>	7.5
<b>Moisture absorption (85°C 85%HR 72h)</b>	0.3 %w



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## ● INSTRUCTIONS FOR USE

- The surfaces should be free of dust, oil and other dirt in order to obtain an optimal efficient bond.
- Shelf life: Store in original, unopened containers for 9 months at room temperature
- If stored below room temperature, the material must be allowed to come to room temperature, in the sealed container, to avoid moisture contamination by condensation.
- Material removed from containers may be contaminated during use. Do not return product to the original container.
- EP1003 is moisture sensitive. It is recommended to use the complete container after its opening.
- In case of uncompleted use of the container, remove moisture from the package by sweeping with dry air (or dry nitrogen) before closing it. After a first opening, it is better to store the product below 0°C.
- In order to reduce viscosity of part A and B (easier handling), warming up to 80°C is possible. This may also help resin flow in pipes of dispensing machines.
- Customer should aware that at this temperature resins are not completely inert. Multiple warming sequences may alter rheological properties of the product after several weeks. Consequently, customer should start by testing lower temperature (e.g. 40°C) and increase progressively until correct flowing.

