

ET1645

High Thermally Conductive Epoxy Adhesive

| Typical Properties | | | |
|----------------------------------|-------------|----------------------------|------------------|
| Property | Unit | Value | Test Method |
| Color / Component | | Grey | Visual |
| Density | Gram /cc | 2.6 | ASTM D792 |
| Viscosity at 25°C | cP.s | 50,000 | ASTM D2196 |
| Property as Cured | | | |
| Color | | Light Grey | Visual |
| Hardness | Shore D | 70 | ASTM D2240 |
| Thermal Conductivity | W/m-K | 1.7 | ASTM D5470 |
| Heat Capacity at 25°C | J/g-K | 1.0 | ASTM D1269 |
| Dielectric Strength | Volt/mil AC | > 550 | ASTM D149 |
| Volume Resistivity | Ohm-cm | > 10E+13 | ASTM D257 |
| Coefficient of Thermal Expansion | ppm/C | 79 (@ > Tg) 25 (@ < Tg) | IPC-TM-650 |
| Adhesion (Al/Al lap shear) | Psi | > 1000 | ASTM D1002 |
| Tg | °C | 150 | DMA |
| Temperature Usage | °C | -80 to 180 | TGA |
| Cure Profile | | | |
| Cure at 125°C | hr | 1 | DSC |
| Cure at 150°C | Min | 20 | DSC |
| Pot Life at 25°C | hr | 16 | Viscosity double |

These figures are only intended as a guide and should not be used in preparing specifications.

Characteristics

ET1645 is an epoxy-based high thermally conductive structural bonding adhesive for electronic applications. It is a one-component, flowable, heat-curing system that cures elevated temperature to provide strong bonding to metals such as aluminum, copper, and FR4 based printed circuit board with excellent thermal conductivity. The cured material also has very low CTE for better thermal cycle performances. ET1645 is dispensable.

Special Features and Benefits

- High thermal conductivity
- High temperature stability
- Low CTE for stress compliance
- Low bleeding, low volatile
- Low ionic content
- ET1645 can have pre-added 7 mil glass bead for thickness control if required

Typical Applications

- Aerospace electronics
- Automotive electronics
- Semiconductor and Telecommunications
- Between high heat power device and heat sink
- Thermally conductive structural bonding
- Thermally conductive vibration

Processing Instruction

For the package in a container (not in a cartridge), to ensure homogeneity of the material, the components must be stirred thoroughly before they are removed or processed in order to uniformly disperse any fillers that might have settled during storage.

We recommend running preliminary tests to optimize conditions for the particular application. Comprehensive processing instructions can be obtained by contacting directly to United Adhesives Inc.

Storage

ET1645 has a shelf life of at least 6 months when stored at -40 °C in the originally sealed container. The 'Best use before end' date of each batch appears on the product label. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Safety information

General hygiene regulations should be observed. Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from United Adhesives Inc.

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose. For technical, quality, or product safety questions, please contact directly to United Adhesives Inc.