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# ET1643

**High Thermally Conductive Epoxy Adhesive**

| Typical Properties | | | |
|---|---|---|---|
| **Property** | **Unit** | **Value** | **Test Method** |
| Color / Component A | | White/Grey | Visual |
| Color / Component B | | White | Visual |
| Mixing Ratio | By weight | 1:1 | |
| Density (as mixed) | Gram /cc | 2.8 | ASTM D792 |
| Viscosity as Mixed at 25°C | Pa.s | 180 | ASTM D2196 |
| **Property as Cured** | | | |
| Color | | Light Grey | Visual |
| Young's modulus | GPa | 6.7 | DMA |
| Thermal Conductivity | W/m-K | 2.0 | ASTM D5470 |
| Heat Capacity at 25°C | J/g-K | 1.0 | ASTM D1269 |
| Dielectric Strength | Volt/mil AC | > 500 | ASTM D149 |
| Volume Resistivity | Ohm-cm | > 10E+12 | ASTM D257 |
| Coefficient of Thermal Expansion | ppm/C | 60 (@ > Tg)<br>18 (@ < Tg) | IPC-TM-650 |
| Adhesion (Al/Al lap shear) | Psi | > 1800 | ASTM D1002 |
| Tg | ℃ | 75 | DMA |
| Temperature Usage | ℃ | -80 to 200 | TGA |
| **Cure Profile** | | | |
| Cure at 25°C | hr | 18 | DSC |
| Cure at 85°C | Min | 60 | DSC |
| Cure at 115°C | Min | 30 | DSC |
| Pot Life at 25°C | Min | 60 | Viscosity double |

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

## Characteristics

ET1643 is an epoxy-based high thermally conductive structural bonding adhesive for electronic applications. It is a two-component, non-slump, addition-curing system that cures at room temperature or 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. ET1643 is both dispensable and printable.

## Special Features and Benefits

- High thermal conductivity & ambient curable
- High temperature stability
- Low CTE for stress compliance
- Low bleeding, low volatile
- Low ionic content
- Pre-added 7 mil glass bead for thickness control

## Typical Applications

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

ET 1643 has a shelf life of at least 6 months when stored between 5℃ and 30℃ in the originally sealed container. For high flow version, please select United Adhesives' product EP1642. For soft version, please select United Adhesives' Thermobond adhesives.

## Processing Instruction

**Important!** Only components A and B with the same lot number may be processed together! 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

ET 1643 has a shelf life of at least 6 months when stored between 5℃ and 30 ℃ 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.