

# ET 1643

## 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) 18 (@ < Tg)	IPC-TM-650
Adhesion (Al/Al lap shear)	Psi	> 1800	ASTM D1002
Tg	°C	75	DMA
Temperature Usage	°C	-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.

### 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°C and 30 °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.

### 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

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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.