

# EP 1635

## High Tg and High Thermal Stability Epoxy Adhesive

Typical Properties			
Property	Unit	Value	Test Method
Color / Component A		White / gray	Visual
Color / Component B		Amber	Visual
Mixing Ratio (A:B)	By weight	1:1	
Density (as mixed)	Gram /cc	1.66	ASTM D792
Viscosity as Mixed at 25°C	cps	32,000	ASTM D2196
Property as Cured			
Color		Brown / gray	Visual
Young's modulus	GPa	8.5	DMA
Dielectric Strength	Volt/mil AC	> 450	ASTM D149
Volume Resistivity	Ohm-cm	> 10E+12	ASTM D257
Coefficient of Thermal Expansion	ppm/C	<98 (@ > Tg) < 27 (@ < Tg)	IPC-TM-650
Adhesion (Al/Al lap shear)	Psi	> 1800	ASTM D1002
Tg	°C	165	DMA
Temperature Usage	°C	-80 to 200	TGA
Cure Profile			
Cure at 150°C	Minute	15	DSC
Or Cure at 125°C	Minute	25	DSC
Pot / Work Life at 25°C	Hour	16	Viscosity double
Shelf Life at 25°C	Month	> 6	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. For potting applications, it is recommended to warm the part A to ~60 °C, then mix with part B. Any possible air bubbles in mixing or potting process can be removed by vacuum.

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

EP 1635 has a shelf life of at least 6 months when stored at ambient 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

EP 1635 is a structural bonding adhesive with high Tg and thermal stability for electronic applications. It is a two-component, flowable, addition-curing system that cures at elevated temperature to provide strong bonding to silicon, flip chip, BGA, ceramics, LTCC, aluminum, copper, stainless steel, etc. with minimized thermal mismatching stress. EP 1635 is dispensable.

### Special Features and Benefits

- Low CTE for stress compliance
- High thermal stability
- High structural bonding strength
- Low bleeding, low volatile
- Low ionic content

### Typical Applications

- Aerospace electronics
- Automotive electronics
- Semiconductor and Telecommunications
- Bonding of die to LTCC, Al, Cu
- Bonding of power devices to heat sinks
- Structural bonding or potting
- Resistance to thermal vibration

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