

Bead-on-Bead Thermally Conductive Adhesives

Product 3875 and 3876

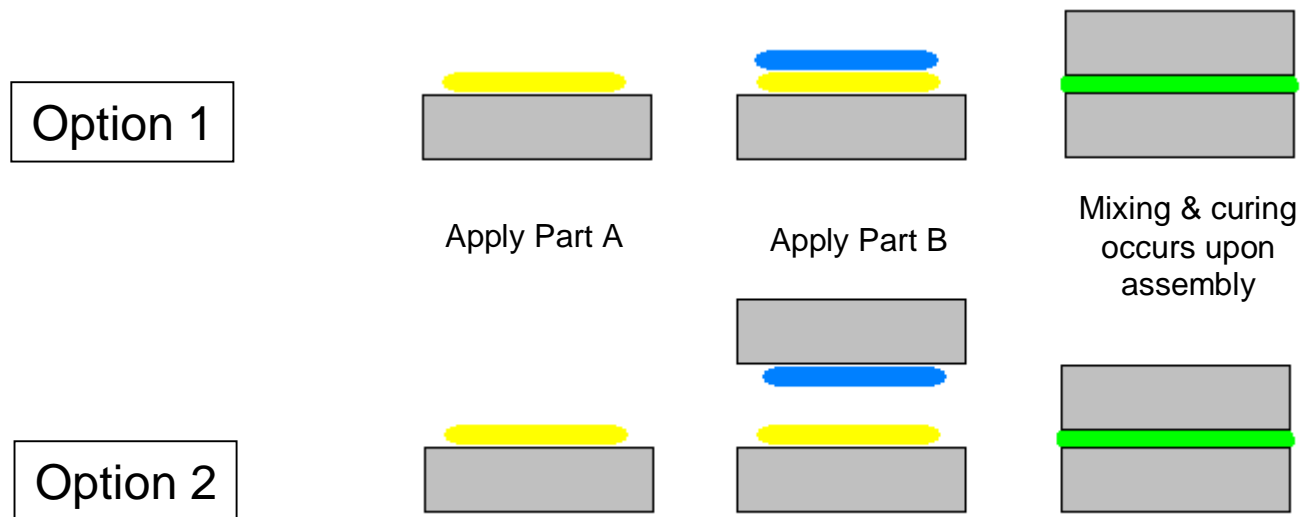
Product Description

- Bead-on-Bead thermally conductive adhesives are unique products based on proven, proprietary structural adhesive technology
- They represent a new concept in bonding a wide variety of heat dissipating electrical and electronic devices to heat sinks and heat spreaders.

Product	Description
3875	1.75 W/m [°] K two-part thermally conductive adhesive
3876	1.75 W/m [°] K two-part thermally conductive adhesive with 7 mil glass spacer beads

Product Description – Basic Concept

- The term “Bead-on-Bead” describes a unique chemistry for a two-part acrylic adhesive
- Rather than premixing parts A&B, each part is applied to the component and the mixing occurs when the two items to be bonded are joined.
- There are two methods for applying this product type:



Features & Benefits

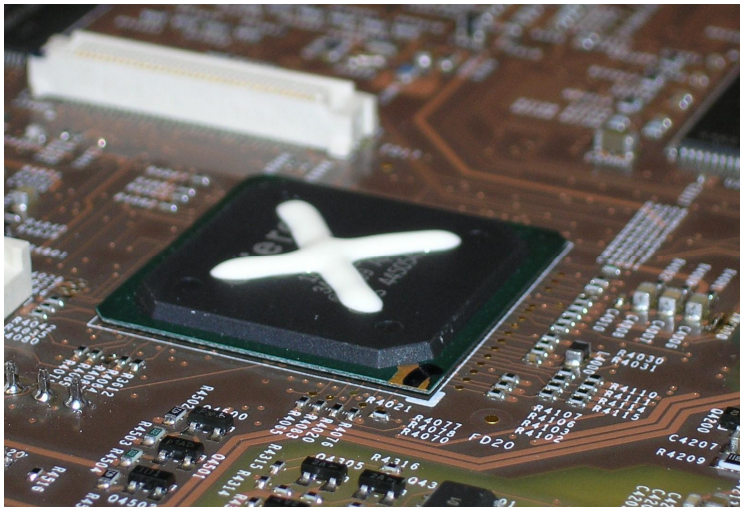
Product attribute	Benefits
High thermal conductivity – 1.75 W/m° K	Improved cooling performance – allows for use of smaller, lighter and more cost effective heat sinks
No mix, no measure, two-part system	Avoids the need for meter-mix dispense systems, solves problems associated with primer-based adhesives, huge process window for assembly
High bond strength	High reliability – no field failures due to heat sinks debonding
Fast fixture	High production throughput
Unique Color Coding	Parts A & B have different colors to avoid confusion and merge into a new color to indicate product has mixed
Lower viscosity	Easy dispensing
Excellent environmental resistance	High reliability in even the most demanding applications
Glass spacer beads	Available 7 mil glass beads provide controlled gap and electrically isolate components from heat-sink

Physical Properties – Technical Data

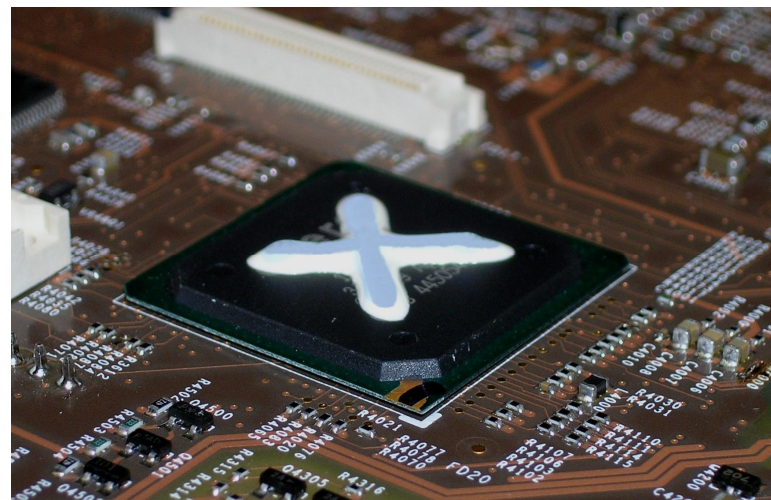
	3875	3876
Color – Part A / Part B	Yellow / Blue	Yellow / Blue
Specific Gravity (g/cc)	1.7	1.7
Viscosity (Pa.s) Part A / Part B 2.5rpm	44 / 199	44 / 199
Part A / Part B 20rpm	29 / 96	29 / 96
Thixotropic Index – Part A / Part B	1.51 / 1.79	1.51 / 1.79
Spacer Beads (inch) / (mm)	None	0.007 / 0.18
Thermal Conductivity, ASTM D5470 (W/m° K)	1.75	1.75
Coefficient of Thermal Expansion (α^1) (ppm/° C)	54	54
Coefficient of Thermal Expansion (α^2) (ppm/° C)	141	141
Glass Transition Temperature, Tg (° C)	28	28
Tensile Shear Strength (ASTM D1002)		
Grit Blasted Steel (N/mm ²) / (psi)	16.68 / 2418	14.88 / 2158
Aluminum (N/mm ²) / (psi)	13.29 / 1927	11.64 / 1688

*Product 3875 measured at 5 mil (0.13mm) bondline, product 3876 measured at 7 mil (0.18mm) bondline provided by glass spacer beads

Operating Parameters Dispensing – Needle Dispense



Dispense Part A



Dispense Part B on top

“X” pattern provides most uniform coverage. One large dot in the center is also acceptable.

Operating Parameters

Dispensing – Stencil Printing



Needle dispense Part A onto component, stencil print Part B onto heat sink.

Operating Parameters

Curing – Fixture Time

- Fixture Time 3-5 mins
 - Fixture time is defined as the amount of cure time required for a 320mm². Bondline to support a 3kg weight
- Fast fixturing allows parts to quickly gain enough strength to avoid displacement during subsequent processing.
- This product has high tack (or green strength) and average heat sinks will not shift position even before fixture strength is achieved.