



LOCTITE®



Loctite® 3875™ and 3876™

Bead-on-Bead High Performance Thermally Conductive Adhesives



The one product that meets the needs of design and manufacturing engineers

While many products force a trade-off between performance and ease of use, Loctite® 3875™ and Loctite® 3876™ Adhesives offer a unique combination of high performance and process friendliness.

These products, formulated with ease-of-use in mind, offer a patent pending “Bead-On-Bead” cure system. This two part system requires no meter mixing, no volumetric measuring, and provides fixture strength within seconds of assembly. Cure is achieved when parts A and B combine upon assembly and no cure equipment or energy is required. The high speed of cure ensures that in almost all cases, the parts will not have to be fixtured or clamped while waiting for the adhesive to gain strength.

All of these process features have been achieved without any decrease in thermal performance over previous generations of products. In fact, these products have a thermal conductivity of 1.75W/m[°]K which is a 40% improvement over the previous best room temperature curing product available.

Loctite® 3875™ Adhesive is the standard product while Loctite® 3876™ Adhesive contains glass beads to ensure a known bondline and consistent thermal and electrical insulation properties.

Product Attributes	Benefits
High thermal conductivity – 1.75 W/m [°] K	Improved cooling performance – allows for smaller, lighter and more cost effective heat sinks
No mix, no measure, two-part system	Avoids the need for meter-mix dispense systems and no need for primer
Fast fixture	High production throughout
Unique Color Coding	Parts A and B are different colors to avoid confusion and change color upon mixing
Lower viscosity	Easy dispensing
High strength and environmental resistance	Consistent thermal properties
Glass spacer beads	Available with 7 mil glass beads to provide controlled gap

Patent Pending



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Typical Process

These products can be dispensed either by time pressure (i.e. needle dispense) or stencil print systems. For small to medium volume applications, dispensing both parts A and B onto the component via needle dispense may be the most practical. For higher volume, part B can be stencil printed onto a batch of heat sinks which are then brought to the production line. Part A is then dispensed onto the component and the parts are mated.

Due to the unique cure chemistry of these products, the ratio of part A to part B does not have to be measured. While we recommend staying as close to 50:50 as possible, the material will cure at any ratio from 60:40 through 40:60, with no adverse effect on mechanical or thermal properties.

Environmental Resistance

These products have been tested through exposure to a wide range of environments and on a wide range of substrates commonly found in typical thermal bonding applications. See Technical Data Sheet for complete information.

Packaging

Loctite® 3875™ and Loctite® 3876™ Adhesives are available in 30 ml EFD syringes and 300 ml SEMCO cartridges.

Storage

Loctite® 3875™ and Loctite® 3876™ Adhesives should be stored in original containers in a refrigerator at 5°C to 10°C.

Further Product Information

Comprehensive Technical Data Sheets are available for Loctite® 3875™ and Loctite® 3876™ Adhesives. For safe handling information on these products, please consult the Material Safety Data Sheet appropriate to your region or contact your local Henkel technical service representative to obtain copies.

Product Data

Product Attributes	Loctite® 3875™ Adhesive	Loctite® 3876™ Adhesive
Color – Part A / Part B	Yellow / Blue	Yellow / Blue
Specific Gravity (g/cc)	1.7	1.7
Viscosity (Pa.s) Part A / Part B 2.5 rpm Part A / Part B 20 rpm	65 / 190 32 / 90	65 / 190 32 / 90
Thixotropic Index – Part A / Part B	1.5 / 1.7	1.5 / 1.7
Spacer Beads (mil/µm)	None	7/175
Thermal Conductivity (ASTM D5470) (W/m ² K)	1.75	1.75
Coefficient of Thermal Expansion (-1) (ppm/°C)	54	54
Coefficient of Thermal Expansion (-2) (ppm/°C)	141	141
Glass Transition Temperature Tg (°C)	28	28
Tensile Shear Strength (ASTM D1002) Grit Blasted Steel (N/mm ²) / (psi) Aluminum (N/mm ²) / (psi)	16.68 / 2418 13.29 / 1927	14.88 / 2158 11.64 / 1688
Operating Temperature Range	-20°C to 125°C	-20°C to 125°C

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