



Creative Materials Introduces New Adhesive for LED Lighting Applications

Low-temperature curing, highly thermally conductive

May 2012--Creative Materials has developed a line of products that are customized for LED lighting applications, now including **125-35C**, Syringe-Dispensable Thermally Conductive Epoxy Adhesive. Formulated for use in the manufacture of LEDs, these products are highly effective as an interface between a heat-producing component and a heat-sink.



Application to LEDs

The expanding industry of high power light emitting diodes (LEDs) provides a good example of the need for effective heat management. Heat removal in LEDs has become a crucial area of R&D, since LEDs are rapidly replacing more traditional lighting methods. The heat generated by LEDs must be removed to ensure optimal performance. In order to extend the life of an LED device and reduce operating cost, the functional temperature must be kept below 120°C.

Heat Removal

One heat-removal technique is to attach a heat-sink, artificially increasing the surface area of the component to allow heat to dissipate. The heat-sink is usually composed of a highly thermally conductive material (e.g., a metal), so the heat can be transferred away from the component. To facilitate heat transfer, the gap between the component and heat-sink must be eliminated. The use of a thermal adhesive can significantly improve the thermal interface between the two substrates.

Creative Materials' New Thermal Management Product: 125-35C

Creative Materials has introduced a new product to our family of thermally conductive adhesives: **125-35C**. The properties of this product are ideal for thermal management applications where precision is required in small area bonding, e.g. for bonding individual LEDs. This product is syringe-dispensable, 100-percent solids, electrically insulating and precatalyzed, featuring outstanding chemical resistance and high-temperature properties. Its thermal conductivity is >5.5 W/mK. The product cures at temperatures as low as 80°C and has a temperature range of up to 230°C. The product is flexible and stress-absorbing when bonding to mismatched substrates. Among the features of this one-component product is ease of use and minimal shrinkage during curing.

Our highly regarded **109-12** remains one of our best-selling products, offering many of the same characteristics as 125-35C and a proven track record in LED lighting applications. This product is extremely versatile in applications where large-area bond lines are needed, offering high thermal conductivity and superior performance. It also features low viscosity, which reduces the



CREATIVEMATERIALS

www.creativematerials.com

ISO 9001 CERTIFIED

Creative Materials, Inc.
12 Willow Road
Ayer MA 01432

T 978.391.4700
F 978.391.4705

amount of air entrapment in the component interface, allowing a minimal amount of product to be applied and keeping thermal resistance low. With thermal conductivity of 5.65 W/mK and operating temperature of up to 220°C, **109-12** is a low-stress epoxy, featuring exceptional resistance to thermal-cycling. In applications where solder replacement is required, the compliant nature of 109-12 avoids the brittle failure of solder.

Other products in the same family are **108-50** and **111-17**, both medium-viscosity products. All products in this family exhibit similar performance characteristics and can be used in a range of applications. Applications include die attachment, printed circuit board fabrication, advanced material composites, LED attachment, and heat-sink bonding. For more information on these and other products, please visit our web site:

http://server.creativematerials.com/datasheets/DS_125_35C.pdf

http://server.creativematerials.com/datasheets/DS_109_12.pdf

http://server.creativematerials.com/datasheets/DS_108_50.pdf

<http://www.creativematerials.com/applications/thermal-management/>

Creative Materials, Inc., is a leading manufacturer of electrically conductive inks, coatings, and adhesives. Products from Creative Materials are used in electronic components for computers, keyboards, cell phones, solar collectors, automobiles and aircraft, for medical electrodes, medical instruments, and heating equipment. Creative Materials is ISO 9001 certified, with an extensive product line that includes more than 1,000 products. The company is renowned for creating custom formulations that are used in a wide variety of global applications, providing cost-effective design solutions for demanding production requirements. With over 80 years of experience in the adhesives, ink and coating industry, our staff combines technical expertise with nimble production capabilities, enabling us to reduce time-to-market for new product applications.

Our products are manufactured to order, with typical lead times of two or more weeks. Pricing is available upon request. For more information about these and other products, please visit our website at www.creativematerials.com, or contact us at info@creativematerials.com.