

FOR IMMEDIATE RELEASE:

## **BONDED BY THE LIGHT:**

### **SHIN-ETSU SILICONES DEVELOPS HIGH-RELIABILITY DIE-BONDING MATERIALS FOR ARRAY OF HIGH-BRIGHTNESS (HB) LED PACKAGING APPLICATIONS.**

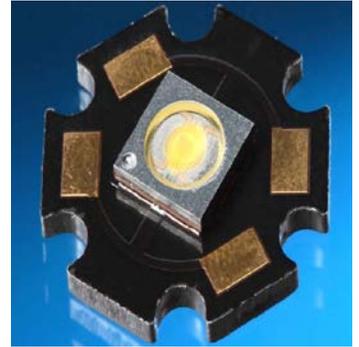
Akron, OH—

Shin-Etsu Silicones of America (U.S. subsidiary of Shin-Etsu Chemical Co. Ltd., Japan) has recently completed research-and-development leading to the introduction of a diverse line of silicone die-bond materials that provide advanced encapsulating performance for high-brightness LEDs (HBLED).

Shin-Etsu's KER Series was developed as a die encapsulation, die-attach adhesive, and lens-type material to provide superior long-term reliability for applications in general-purpose lighting and the rapidly expanding HBLED category. The KER Series is a methyl silicone based system which hardens by using a heat cured platinum catalyst.

Comprised of three key products (KER-300-M2 / KER-3100-U2 / KER-3200-T1), the series offers a broad spectrum of silicone polymer chemistry and structural composition that make them an excellent choice for numerous demanding HBLED packaging applications. Notable applications range from display equipment like traffic light signals to backlight sources such as LED TVs and a myriad of lighting materials like automobile headlights.

Generally, epoxy resins have been used for these applications; however, silicone has become increasingly adopted as an essential material from a reliability standpoint. In addition to providing increased adhesive strength and thermal performance, the KER products are more compatible with silicone encapsulates than epoxy-based die attach materials, which may inhibit platinum heat cure materials. The KER series is available in clear, opaque, and white thin bond line versions to minimize light absorption and maximize heat dissipation.



## **PHYSICAL PROPERTIES:** *Advanced Reliability. Diverse Capability.*

**KER-3000-M2:** A one-component, heat-cure die-bond formulation using a silicone base, the KER-3000-M2 is an almost transparent, colorless die-bond material that exhibits little discoloration and has high long-term reliability in withstanding the effects of heat and light.

The, KER-3000-M2 material has excellent transmittance of UV light, so it can be used for UV-LED chips. It has good adhesion to LED packages plated with silver and other metals, and retains its adhesive strength at high temperatures (over 150°C). Chip movement is curtailed during bonding, thus ensuring more consistent positioning accuracy.

**KER-3100-U2:** A one-component heat-cure die-bond material with a silicone base, the KER-3100-U2 has high covering power, high light reflectivity, low thermal resistance, and superior thermal conductivity. Its white-color is ideal for applications when gold plating is used and a white color adhesive reflecting light is required.

**KER-3200-T1:** A one-component heat-cure die-bond adhesive with a silicone base, the KER-3200-T1 has low thermal resistance and exhibits little discoloration from heat and light.

## **CONCLUSION:**

In the midst of sharp revenue declines in most electronics component categories, LEDs provide a rare growth opportunity as improvements in luminance and the applications of LEDs are rapidly expanding. Shin-Etsu has a line-up of other diverse silicone encapsulating materials for HBLED applications such as KER-2500, KER-2600 and SCR-1011-1012 series. These products are rubber-based potting materials with high long-term reliability. The SCR-1012-1016 are resin-based potting materials having a high modulus of elasticity; close to that of epoxy resins. Representative products in the “SCR Series” are increasingly being adopted for backlighting applications in mobile phones and notebook PCs.

**CORPORATE PROFILE:** A U.S. subsidiary of Shin-Etsu Chemical Co. Ltd., Japan, Shin-Etsu Silicones of America Inc. offers vast technical and capital resources to formulate solutions as a major supplier of silicone materials to North America's medical, automotive, electronics, aerospace, and manufacturing industries. Shin-Etsu's premium silicone compounds incorporate leading-edge technology, staff expertise, and value-added service; offering customers the highest levels of quality and consistency in specialty silicone materials.



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