



Press release
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Breakthrough Epoxy Flux Technology from Henkel Offers Cost-Effective Single Material Solution for Advanced Package Configurations

In what is truly a ground breaking material advance, Henkel Corporation has developed a new reflow cured encapsulant material that combines flux functionality and underfill protection into a single material. The breakthrough product, Hysol® FF6000™, is a reflow curable material that is formulated to provide flux for lead-free solder joint formation and, when cured, delivers protection against mechanical stress.

Unlike traditional capillary underfill processes in which the device is mounted onto the printed circuit board, the assembly is reflowed and then the device is underfilled, Hysol FF6000 enables an in-line alternative that affords thorough device protection as well. With the epoxy flux process, bottom side spheres are dipped into Hysol FF6000 prior to component placement. The device is placed onto the printed circuit board or substrate and then travels through reflow. During the reflow process, the flux provides the action necessary for solder joint formation and the epoxy encapsulates each solder sphere, delivering added support and protection. This streamlined approach effectively eliminates the need for dispensing equipment and the time required for underfill application and cure.

Though relevant for a variety of applications, Hysol FF6000 is particularly well-suited for today's Package-on-Package (PoP) device configurations and/or very large BGAs and CSPs where traditional underfill processes may be problematic. Second-level device attachment in emerging PoP applications is particularly challenging. Currently, many PoP device assemblers use tacky flux material for top level component attachment, which enables solder joint formation but does not resolve the issues pertaining to device support and protection. However, when Hysol FF6000 is employed, both solder joint formation and sphere protection are achieved with a single material and in one, simple step. For very large BGA and CSP device applications, Hysol FF6000 also affords superior process efficiency. In these bigger devices – typically 23 x23 mm or more– large volumes of underfill must be dispensed in order to cover the entire device area. Not only is this costly from a materials



point of view, but it is also time-consuming as underfill flow time on large devices can be lengthy. Hysol FF6000 offers an in-line alternative that saves both time and money.

“Without question, Hysol FF6000 has the potential to revolutionize the way the industry thinks about conventional flux and underfill processes,” says Henkel Global Product Manager, Robert Chu. “Enabling joint formation and sphere encapsulation with one material not only delivers tremendous throughput and cost-saving advantages, it may also provide more robust protection than other underfill alternatives. We believe this is a giant leap forward in materials technology – an advance that can completely alter current manufacturing techniques.”

For more information on Henkel’s Hysol FF6000 material, call the company’s headquarters at 949-789-2500 or log onto www.henkel.com/electronics.

About Henkel

For more than 130 years, Henkel has been a leader with brands and technologies that make people's lives easier, better, and more beautiful. Henkel operates in three business areas -- Home Care, Personal Care, and Adhesives Technologies -- and ranks among the Fortune Global 500 companies. In fiscal 2007, Henkel generated sales of \$19.218 billion and operating profit of \$1.975 billion. Our 53,000 employees worldwide are dedicated to fulfilling our corporate claim, "A Brand like a Friend," and ensuring that people in more than 125 countries can trust in brands and technologies from Henkel.

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