



Press Release

March 7, 2018

EMI Shielding and Thermal Interface Materials take Top Honors

Award Wins Highlight Henkel's Broad Innovation Portfolio

Irvine, CA – At last week's IPC APEX Expo event in San Diego, CA, Henkel's Adhesive Electronics group continued its winning streak, landing two trophies in *Circuits Assembly* magazine's annual NPI Awards contest. The program, which recognizes leading products for electronics assembly introduced during the last year, leverages a judging panel of practicing industry engineers to decide the most impactful technologies as compared to others in specific categories. Each product is evaluated on challenging metrics including creativity and innovation, compatibility with existing technology, cost-effectiveness, design, reliability, flexibility, performance, user-friendliness and throughput capability.

Having participated in the NPI Awards for over ten years, Henkel has been honored for product innovation in solder materials, thermal interface materials, circuit board protection formulations and masking/coating solutions. This year, the company won the Coatings/Encapsulants category with its novel package-level EMI shielding materials and the Underfills/TIMs category with its peelable thermal interface material (TIM), BERGQUIST GAP FILLER TGF 1500RW.

"The broad scope of Henkel's product line is a distinct advantage for our customers," says Henkel Global Marketing Director, Doug Dixon, noting the company's range of materials for semiconductor packaging, electronics assembly and structural bonding. "Understanding an application in its entirety and being able to deliver a comprehensive solution –as opposed to just a single product – streamlines the supply chain and gives customers a competitive edge. Winning two NPI awards in such different categories illustrates not only the breadth of our portfolio, but the fact that our wide product spectrum provides best-in-class performance."

Providing an EMI solution for thinner product designs, the winning Henkel EMI shielding materials, LOCTITE ABLESTIK EMI 8880S and LOCTITE ABLESTIK EMI 8660S, are spray-coated metal inks that can be deposited as thin as 3 μm – 5 μm on package exteriors. An alternative to conventional EMI shielding metal cans or faraday

cages, the Henkel materials address the growth of higher-frequency communication standards, alongside the drive toward thinner profile packages, increased functionality and higher-density PCBs, with more effective, adaptable package-level EMI solutions.

In the competitive Underfills/TIMs category, Henkel's new peelable BERGQUIST GAP FILLER TGF 1500RW took the top prize. The unique liquid TIM allows for high throughput, thermal control and assembly rework – a combination of characteristics that are distinctive among thermal management materials. A one-part, cure-in-place, dispensable TIM with a thermal conductivity of 1.5 W/m-K, the new Henkel formulation can be easily peeled away from contact surfaces, limiting harm to sensitive componentry and preserving product value. Traditional cure-in-place TIMs generally require significant force for disassembly, often resulting in permanent damage. In addition to its assembly reworkability, BERGQUIST GAP FILLER TGF 1500RW facilitates multi-application single product sourcing, high-volume processing and provides excellent low and high temperature mechanical and chemical stability.

To learn more about Henkel's award-winning materials, visit www.henkel-adhesives.com/electronics and www.henkel-adhesives.com/thermal.

About Henkel in North America

Henkel operates across its three business units – Adhesive Technologies, Beauty Care and Laundry & Home Care – in North America. Its portfolio of well-known consumer and industrial brands includes Schwarzkopf® hair care, Dial® soaps, Right Guard® antiperspirants, professional hair care brand Sexy Hair®, Persil®, Purex® and all® laundry detergents, Snuggle® fabric softeners as well as Loctite®, Technomelt® and Bonderite® adhesives. North America is an important region for Henkel: With sales of around 5.8 billion US dollars (5.2 billion euros) in 2017, North America accounts for 26 percent of the company's global sales. Henkel employs more than 9,000 people across the U.S., Canada and Puerto Rico. For more information, please visit www.henkel-northamerica.com.

About Henkel

Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies. Henkel Adhesive Technologies is the global leader in the adhesives market – across all industry segments worldwide. In its Laundry & Home Care and Beauty Care businesses, Henkel holds leading positions in many markets and categories around the world. Founded in 1876, Henkel looks back on more than 140 years of success. In 2017, Henkel reported sales of 22.6 billion US dollars (20 billion euros) and adjusted operating profit of around 3.9 billion US dollars (3.5 billion euros). Combined sales of the respective top brands of the three business units – Loctite, Schwarzkopf and Persil – amounted to 7.2 billion US dollars (6.4 billion euros). Henkel employs more than 53,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose to create sustainable value, and shared values. As a recognized leader in sustainability, Henkel holds top positions in many international indices and rankings. Henkel's preferred shares are listed in the German stock index DAX. For more information, please visit www.henkel.com.

Photo material is available at www.henkel-northamerica.com/press

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