Press Release

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Silicone-free, low thermal impedance material provides stable thermal performance for the most demanding electronic devices

High-performance thermal grease from Henkel delivers for high-power applications

Irvine, CA – Extending its portfolio of thin bond line, low thermal impedance thermal interface materials (TIMs), Henkel today announced the commercialization of Loctite Bergquist TGR 5000SF, a high-performance thermal grease designed for high-power components used in critical markets. Target applications include some of the most vital devices for modern data center, telecom, and power generation infrastructures, including 5G antennas and remote radio units, data center switches, routers, and servers, as well as power devices like IGBTs, motor drives, and power modules.

Within these high-stakes sectors, dependable component performance is crucial, and robust thermal management is essential for ensuring reliability and a long system working life. Thin bond line TIMs, like thermal greases, provide the lowest thermal resistance with the most efficient heat-dissipating path, ensuring optimized device functionality.

"In designing Loctite Bergquist TGR 5000SF, we wanted to develop a thermal grease that goes above and beyond conventional materials," explains Katie Willgoos, Henkel Data and Telecom Market Segment Head. "Most thermal greases suffer from material migration or 'pump-out' over time, which can diminish performance. Loctite Bergquist TGR 5000SF, however, is resistant to pump-out compared to traditional greases within high-temperature and high-cycling environments, which dramatically improves reliability throughout device lifetime. Its silicone-free formulation also eliminates any silicone outgassing concerns, enabling use in more sensitive applications without any risk of contamination."

The material's unique solvated formulation lowers compression stress, minimizes final bond line thickness in application, and aids in automated dispensing performance. Loctite Bergquist TGR 5000SF has an ultra-thin bond line of <25 µm at low pressure (40 psi), thermal conductivity

of 5.3 W/m-K (after solvent evaporation), and low thermal impedance (5.6 mm^2-K/W), delivering exceptional thermal capability. In internal evaluations, the material has demonstrated consistent performance across varying bond line thicknesses. Impressive reliability data reveals the material's stability and effectiveness for high-power, high-reliability applications. Loctite Bergquist TGR 5000SF showed <15% thermal degradation after 1,000 hours at various temperatures, minimal thermal impedance loss after 1,000 hours at 125° C, and no performance loss during thermal cycling testing from -40° C to 125° C. Humidity exposure (85° C/85° RH) indicated no drop in performance after 1,000 hours.

Loctite Bergquist TGR 5000SF not only excels in thermal control and reliability but also seamlessly integrates with traditional manufacturing processes, delivering adaptability and ease of use. The thermal grease can be manually or automatically dispensed, has demonstrated thorough material transfer and adhesion rates, and contains a UV tracer to confirm proper deposition location and coverage, reducing opportunities for error.

"Thermal greases are one of the go-to TIMs when ultra-thin bond lines are required," says Willgoos, underscoring the material category's dominance while noting the requirement for better grease performance. "However, designers of high-reliability applications are often reluctant to specify them because of pump-out and stability challenges. Loctite Bergquist TGR 5000SF helps alleviate those concerns, offering a highly stable, high-performance thermal grease designed specifically for challenging high-power electronics devices."

To learn more about Loctite Bergquist TGR 5000SF or any of Henkel's thin bond line TIM solutions, visit BERGQUIST® TGR 5000SF | Henkel Adhesives.

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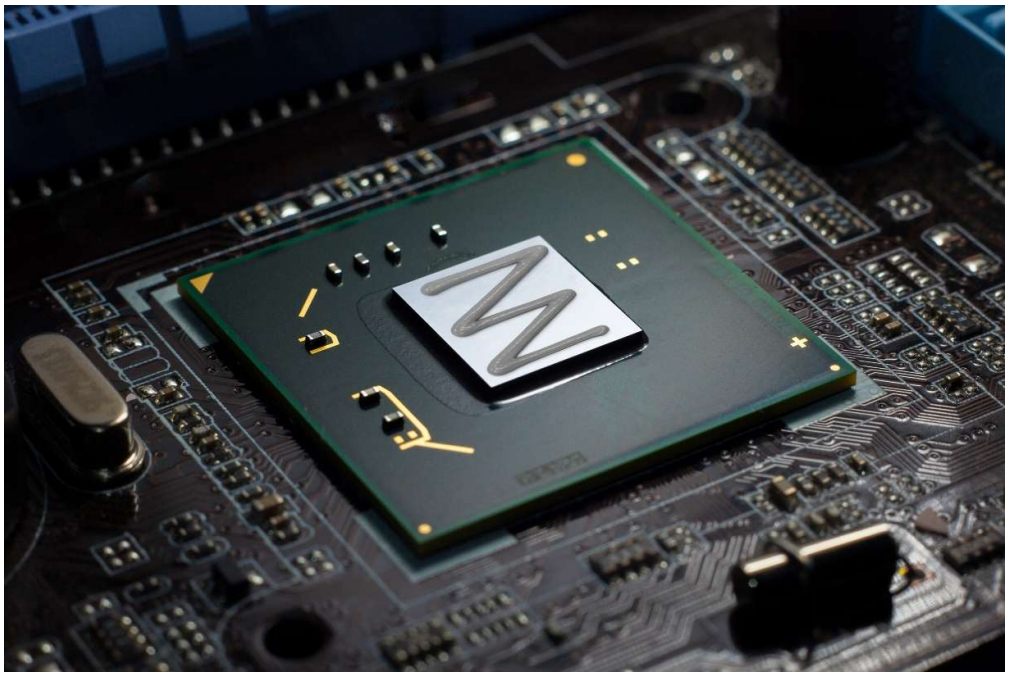
About Henkel

With its brands, innovations and technologies, Henkel holds leading market positions worldwide in the industrial and consumer businesses. The business unit Adhesive Technologies is the global leader in the market for adhesives, sealants and coatings. With Consumer Brands, the company holds leading positions especially in laundry & home care and hair in many markets and categories around the world. The company's three strongest brands are Loctite, Persil and Schwarzkopf. In fiscal 2025, Henkel reported sales of about 20.5 billion euros and adjusted operating profit of around 3.0 billion euros. Henkel's preferred shares are listed in the German stock index DAX. Sustainability has a long tradition at Henkel, and the company has a clear sustainability strategy with specific targets. Henkel was founded in 1876 and today employs a diverse team of about 50,000 people worldwide – united by a strong corporate culture, shared values and a common purpose: "Pioneers at heart for the good of generations." More information at www.henkel.com

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Loctite Bergquist TGR 5000SF is a high-performance thermal grease designed for high-power components used in critical markets.