



Press Release

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Innovative 14.5 W/m-K TIM formulation elevates performance of high-power-density optical transceivers, including coherent optical modules

Henkel unveils high thermal conductivity gap filler for AI data center optical transceivers

Irvine, CA – Tackling the thermal control demands of cutting-edge AI data center optical components, Henkel today announced the commercialization of Loctite TCF 14001, a high thermal conductivity silicone liquid thermal interface material (TIM). Designed for 800G and 1.6T transceiver technologies, the 14.5 W/m-K gap filler is among the highest thermally conductive liquid materials on the market, enabling elevated transceiver performance through robust heat management.

Escalating AI workloads pose significant bandwidth and latency challenges that can only be addressed by more powerful, high-speed optical technology. While next-generation 800G, 1.6T, and coherent optical transceivers are meeting speed, distance, latency, and bandwidth demands, their high-power density chip designs result in increased heat generation. Exceptional thermal control is required to fully exploit their performance potential.

Commenting on Henkel's efforts to address the functional heat challenges of newer optical technologies, Henkel Data and Telecom Global Market Strategy Manager Tracy Lin says: "The thermal conductivity level of our latest gap filler formulation is a first for liquid TIMs. This capability is of primary importance for high-speed transceivers, but the material must also align with mass production, deployment in sensitive optical environments, and operational durability. Processability and in-application reliability are vital, and Loctite TCF 14001 meets these expectations."

A low-volatility, two-part silicone material, Loctite TCF 14001 exhibits minimal outgassing (<100 ppm silicone volatiles) and very low oil bleed, protecting against any optical interference. The unique filler technology of the TIM formulation enables highly precise automated dispensing with stable flow, while its strong interface adhesion and good gap variation

tolerance across a range of chip sizes ensure thermal performance continuity even when high thermal loads may induce stress and chip warpage.

In addition to its success with AI data center optical devices, Loctite TCF 14001's application scope extends to numerous other markets where automated, low thermal impedance, high thermal conductivity TIM solutions are necessary. These include telecom, automotive, power generation, and industrial automation, among others.

Visit [this resource](#) for more information about Loctite TCF 14001.

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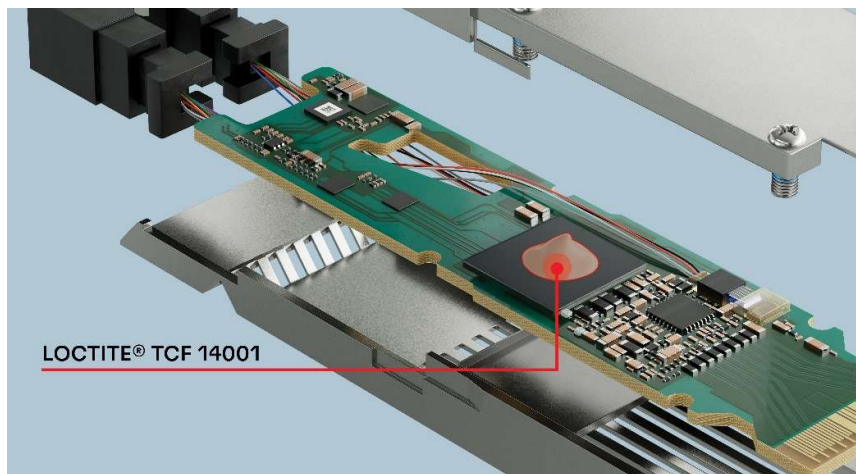
About Henkel

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 functional 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 2024, Henkel reported sales of more than 21.6 billion euros and adjusted operating profit of around 3.1 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 47,000 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

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

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Henkel has launched Loctite TCF 14001, a high thermal conductivity silicone liquid thermal interface material (TIM).