Press Release

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Durable coating compatible with nickel-finished heat sinks and transceivers

Henkel expands Micro-Thermal Interface Material (mTIM) coating portfolio to address higher-bandwidth optical transceiver requirements

Irvine, California – As a material specialist for data and telecom applications Henkel continues to tackle the evolving performance demands for high data bandwidth applications. Today, the company announced a new formulation within its Bergquist microTIM mTIM 1000 series micro-thermal interface coating portfolio. The award-winning materials offer significant reductions in functional heat experienced by optical transceivers, with the latest development addressing the thermal challenges of 400, 600 and 800 Gb pluggable optical modules (POMs).

High-capacity POMs can produce as much as 30 watts of power in operation, generating performance-diminishing heat. Current approaches to thermal control involve conventional metal-to-metal interfaces (transceiver to riding heat sink) and the use of adhesive-applied phase change materials. Henkel's coating materials offer a more robust solution with the company's most recent formulation, Bergquist microTIM mTIM 1028, designed to deliver enduring thermal control for high bandwidth density POMs. These devices are typically constructed with nickel housings and interface with nickel-coated copper heatsinks for system heat removal. Compared to alternatives, Bergquist microTIM mTIM 1028 can withstand as many as 500 pulls and insertions without performance degradation and reduces operational temperatures per POM by as much as 0.18° C/W.

"With today's data throughput expectations, heat control is one of the most effective ways to improve operational efficiency," explains Wayne Eng, Global Head of Data & Telecom Market Strategy at Henkel. "Our groundbreaking microTIM is well-proven with standard aluminum-based riding heatsinks and is now extended to nickel-coated copper heatsinks often employed with higher-bandwidth modules. Furthermore, the material can also be coated on

the transceiver, providing a value-added solution for POM manufacturers as a point of competitive differentiation."

Internal testing of Bergquist microTIM mTIM 1028 with a QSFP-DD 400 Gb module revealed the following:

- Produced an average of 0.18° C/W performance increase compared to a metal-to-metal interface across various pressure ranges.
- A 300°C temperature spike for a 30-minute duration had no adverse effect on coating performance.
- Compatible with complex heat pipe and fin heatsink designs.
- May also be applicable as a heat dissipation solution for any metal-to-metal interface, including liquid cooling components.

"Our approach to heat control in hyperscale data center line cards is a critical development for future performance objectives," says Eng. "While conventional thermal management methods are adequate for 100 Gb POMs, the bandwidth and reliability demands of next-generation links are tremendous. We believe this new material innovation is an important element for line card thermal control and performance optimization, and could potentially play a role in reducing heat within other data center applications, such as liquid cooling pipes and plates."

Henkel's nickel-compatible Bergquist microTIM mTIM 1028 is the latest material in the company's microTIM line and is available for sampling on request. For more information about Henkel's data center solutions, visit this resource.

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 2021, Henkel reported sales of more than 20 billion euros. The company employs about 53,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose, 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.

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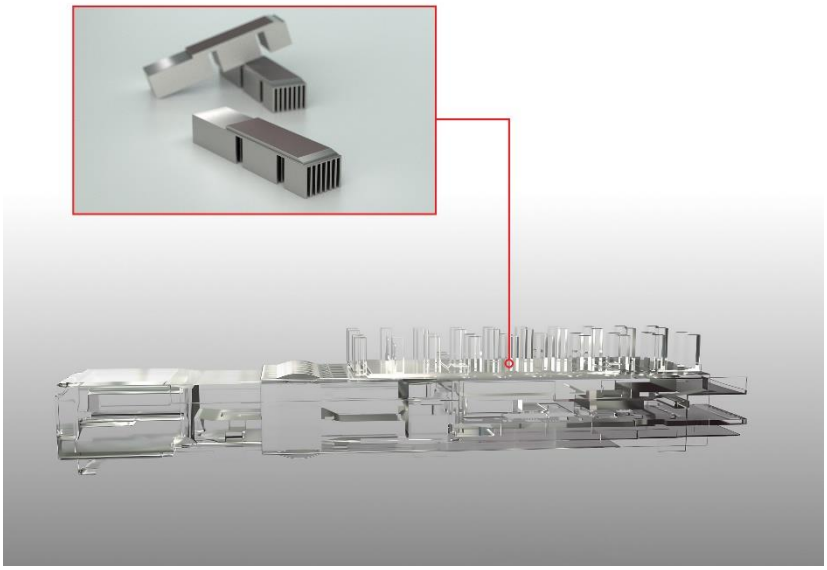

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