



## Press Release

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High thermal conductivity, controlled volatility material maximizes heat dissipation and alleviates outgassing concerns

### **Henkel liquid thermal gap filler accelerates dispensing, reduces contamination risk and improves reliability**

Düsseldorf – Recognizing the requirement in many market sectors for thermal interface materials (TIMs) that can enhance processability while complying with increasingly challenging performance and cost metrics, Henkel has leveraged a new formulation approach in the development of Bergquist Gap Filler TGF 4500CVO. The liquid, gap filling thermal interface material dramatically improves on conventional TIM dispensing speeds, while simultaneously delivering high thermal conductivity of 4.5 W/m-K in a controlled volatility product. Balancing viscosity, high thermal conductivity and controlled volatile outgassing is a challenging formulation achievement, but Bergquist Gap Filler TGF 4500CVO successfully delivers these attributes in a material with low-stress, silicone-like mechanical properties.

As Justin Kolbe, Henkel Director of Market Strategy for Power and Industrial Automation, notes, highly-filled, high thermal conductivity liquid TIMs have complex rheologies and are often challenging to dispense quickly. “Among other characteristics, Bergquist Gap Filler TGF 4500CVO resolves the dispensing rate dilemma with excellent processability, no separation and good print fidelity,” he says, explaining that normally fast deposition or high thermal conductivity are binary formulation choices. “New Henkel resin and filler innovation has allowed an ‘all of the above’ scenario in a material that secures low cost of ownership alongside reduced siloxane contamination risk.”

Historically, to overcome the processing difficulties of highly-filled liquid TIM products, material developers have integrated low molecular weight binders to reduce viscosity in an effort to accelerate dispense rates. However, this practice can result in the production of mobilized volatiles that interfere with mechanical contacts, optical components and sensitive environments. Therefore, Henkel’s novel silicone-based resin chemistry and filler approach

are significant, particularly for mass production, volatile-susceptible applications such as industrial automation and power conversion, automotive electronics, computers and peripherals and devices integrating optical components.

Bergquist Gap Filler TGF 4500CVO is a two-part, 4.50 W/m-K liquid thermal interface material with a unique polymer resin structure that, when combined with novel filler processing, dispenses quickly at a rate of up to 4.9 cc/second with no caking or separation. The slump-resistant liquid thoroughly fills gaps and complex topographies, reducing thermal resistance and imparting little to no assembly stress on substrates and component interconnects. Containing less than 300 ppm volatile silicones, Bergquist Gap Filler TGF 4500CVO can be integrated into virtually any environment without fear of contamination or functional interference.

“Unless you are a chemist, it may be difficult to appreciate how ingenious the Bergquist Gap Filler TGF 4500CVO formulation is,” Kolbe concludes. “But the results speak for themselves: easily processed, high throughput, high thermal conductivity, low risk, improved operational reliability and cost-competitive. For certain applications, this product delivers on all fronts.”

To learn more about BERGQUIST Gap Filler TGF 4500CVO, visit the [product page](#).

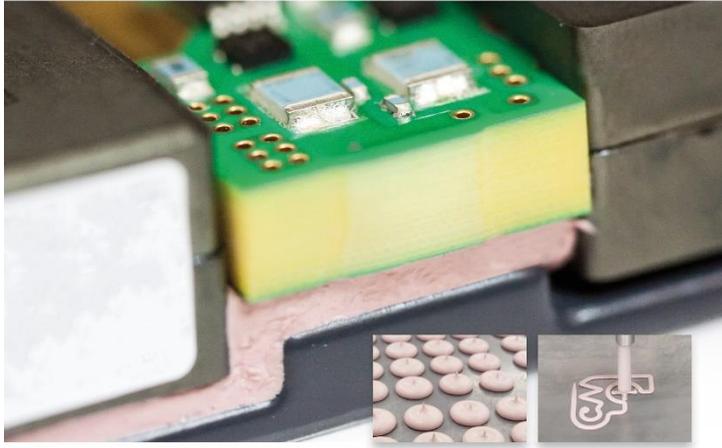
#### **About Henkel**

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 2019, Henkel reported sales of more than 20 billion euros and adjusted operating profit of more than 3.2 billion euros. Henkel employs more than 52,000 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](http://www.henkel.com).

**Photo material is available at [www.henkel.com/press](http://www.henkel.com/press)**

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