



Press Release

May 3, 2023

165 W/m-K material well-suited for high-reliability power discrete packages used in automotive and industrial applications

Henkel debuts ultra-high thermal conductivity pressure-less sintering die attach adhesive that meets automotive grade reliability standards

Irvine, CA – Henkel today announced the addition of Loctite Ablestik ABP 8068TI to its growing portfolio of high thermal die attach adhesives. With 165 W/m-K thermal conductivity, the new pressure-less sintering die attach paste boasts the highest thermal capability in the company's semiconductor packaging portfolio, meeting performance requirements for high-reliability automotive and industrial power discrete semiconductor devices.

"High voltage applications like those found in automotive ADAS systems, EVs, industrial motor controls, and high-efficiency power supplies require superior electrical and thermal performance," says Henkel's Global Market Segment Head for Semiconductor Packaging Materials, Ramachandran Trichur. "Currently, the only viable die attach alternative to Pb solder – which will soon be phased out and cannot meet certain thermal demands – is sintered silver (Ag). Henkel pioneered pressure-less sintering die attach, allowing the use of standard, low-stress processing, and we have now formulated our fourth and highest thermal conductivity material to date, which tackles the stringent thermal and electrical requirements of next-generation power packages."

Henkel's newest pressure-less sintering die attach formulation meets multiple metrics for power semiconductors like MOSFETs, which are increasingly incorporating silicon carbide (SiC) and gallium nitride (GaN) materials as alternatives to silicon (Si) for improved efficiency. Loctite Ablestik ABP 8068TI is compatible with traditional Si and newer wide-bandgap semiconductors, among other power discrete devices. The 165 W/m-K ultra-high thermal conductivity die attach adhesive has demonstrated excellent sintering properties with good adhesion on copper (Cu),

pre-plated (PPF), silver (Ag), and gold (Au) lead frames, robust electrical conductivity and stable RDS(on) after 1,000 hours of thermal cycling, and MSL 3 reliability. Recommended for dies measuring 3.0 mm x 3.0 mm or smaller, Loctite Ablestik ABP 8068TI fully cures at 175° C or above to form a rigid sintered Ag network in the bulk epoxy and at the interface. Because pressure-less sintering is a drop-in replacement for standard die attach, high pressure is not required to achieve this robust structure, eliminating stress on thin die. Workability of the material is also notable at three hours of void-free open time and 24 hours of stage time with no degradation in shear strength.

As Trichur concludes, the power device market will only accelerate in application uses and performance requirements, making high-capability, high thermal die attach solutions an operational necessity: "There is an increased demand for power devices across market sectors, including automotive, industrial power storage and conversion, and aerospace, to name a few. For power semiconductors, sintered die attach is the prevailing and most reliable solution to deliver the die attach strength, integrity, and thermal and electrical conductivity required. Loctite Ablestik ABP 8068TI provides all this in a formula that enables simple processing to protect thinner, more complex dies."

To discover more about Henkel's pressure-less sintering portfolio, visit [this resource](#).

About Henkel

With its brands, innovations and technologies, Henkel holds leading market positions worldwide in the industrial and consumer businesses. The Adhesive Technologies business unit is the global leader in the market for adhesives, sealants and functional coatings. With Consumer Brands, the company holds leading positions especially in hair care and laundry & home care in many markets and categories around the world. The company's three strongest brands are Loctite, Persil and Schwarzkopf. In fiscal 2022, Henkel reported sales of more than 22 billion euros and adjusted operating profit of around 2.3 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 more than 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

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

Contact Yeap Wei Ting
Email weiting.yeap@henkel.com

Henkel AG & Co. KGaA