



Press Release

October 26, 2020

Thermal management materials, adhesives and sealants work in concert to achieve e-mobility ambitions

Henkel to showcase the impact of material science on automotive battery design and assembly at the 2020 Virtual Battery Show

Düsseldorf, Germany – Henkel today announced it will demonstrate how material science is enabling EV battery designers and automotive OEMs to achieve enhanced safety, efficiency and affordability objectives during the virtual Battery Show & EV Tech Digital Days North America & Europe on November 10-12. While developing EV designs that balance safety requirements, ambitious performance metrics and production efficiency is a major challenge, Henkel will reveal how its broad technology portfolio and process expertise has led to various EV design and component assembly successes. Using practical cases, the areas of focus will include:

Thermal Control

Thermal management is fundamental to safe, efficient EV battery function and long operating life. While the primary role of thermal interface materials (TIMs) is heat dissipation to optimize operation and avoid 'thermal runaway', additional features such as fast flow rates and lightweighting enable high-throughput production and extended driving range respectively. Henkel will feature two of its latest liquid TIM innovations, specifically silicone-based Bergquist Gap Filler TGF 2200 APS and silicone-free Bergquist Gap Filler TGF 3010 APS, which address multiple goals: dispensing speeds of up to 80 cc/second and robust thermal conductivity of up to 3 W/mK to tackle safety and functional reliability requirements.

With many factors to consider, most importantly passenger safety, close consultation with a trusted, multi-solution partner will ensure all thermal management and material compatibility objectives are met.

Durable Adhesives

In addition to robust thermal management, battery pack integrity is reliant on adhesive material strength. The ability to withstand the stress of harsh environmental and operational conditions, as well as provide cost-down benefits through high-speed application and fast curing capabilities, are key considerations for adhesive selection. Fast assembly of all elements of the EV battery pack is vital to addressing steadily declining battery costs, which have dropped nearly tenfold over the last decade. Along with other power storage portfolio products, Henkel EV assembly adhesives are supporting customers' cost efficiency requirements. The company will feature a recent success with battery cell carrier manufacturer Covestro, where Henkel's Loctite AA 3963 cure-on-demand adhesive is enabling five-second cell fixturing for mass production economies of scale.

Battery Show attendees will see how adhesives that perform multiple functions, such as bonding and heat dissipation, can also aid in reducing overall costs. Loctite and Bergquist thermally conductive adhesives, designed for the assembly of cylindrical and pouch cells, deliver this dual-functionality in carefully-balanced formulations that combine effective thermal conductivity and high bonding strength.

Serviceable Sealants

As the battery system represents approximately 50% of the EV cost, shielding the battery pack from contaminants helps protect its value. The ability to easily service and repair a battery lowers the lifetime cost of the EV, as Henkel will demonstrate during the Battery Show. Products like Henkel's Loctite ESB 5100, a unique safeguarding sealant innovation, offers unprecedented application flexibility. The gasketing material, for example, can secure the battery pack lid to the housing, while it can also be quickly removed and re-applied for battery repair access.

Shared Knowledge

Deep expertise and comprehensive understanding of EV battery pack design, industry trends, and complementary material formulation allow the Henkel team to provide a total solution for automotive battery and OEM customers. At the Battery Show & EV Tech Days, Henkel technical specialists will freely share this knowledge during two seminar events:

- Webinar, Tuesday, **Nov. 10, 9:30 a.m. (ET)**: "Optimizing EV Battery Pack Design & Assembly: How Innovative Thermal Interface Materials, Adhesives and Sealants are Driving e-Mobility Forward", Henkel's Dr. Pradyumna Goli, BDM Battery Systems and Reid Chesterfield, Director Thermal Product Development
- Lightning Talk, Thursday, **Nov. 12, 9:30 a.m. (CEST)**: "Selecting the Right Material for Thermal Management in EV Electronic Component", Holger Schuh, Global Technology Lead Thermal

Conference participants are also invited to engage directly with the Henkel automotive power storage team members through live chat and visit the virtual booth where more materials will be made available.

For additional details about Henkel's contributions to the future of e-Mobility, visit henkel-adhesives.com/emobility.

Loctite and Bergquist are registered trademarks of Henkel and/or its affiliates in Germany and elsewhere.

About Henkel

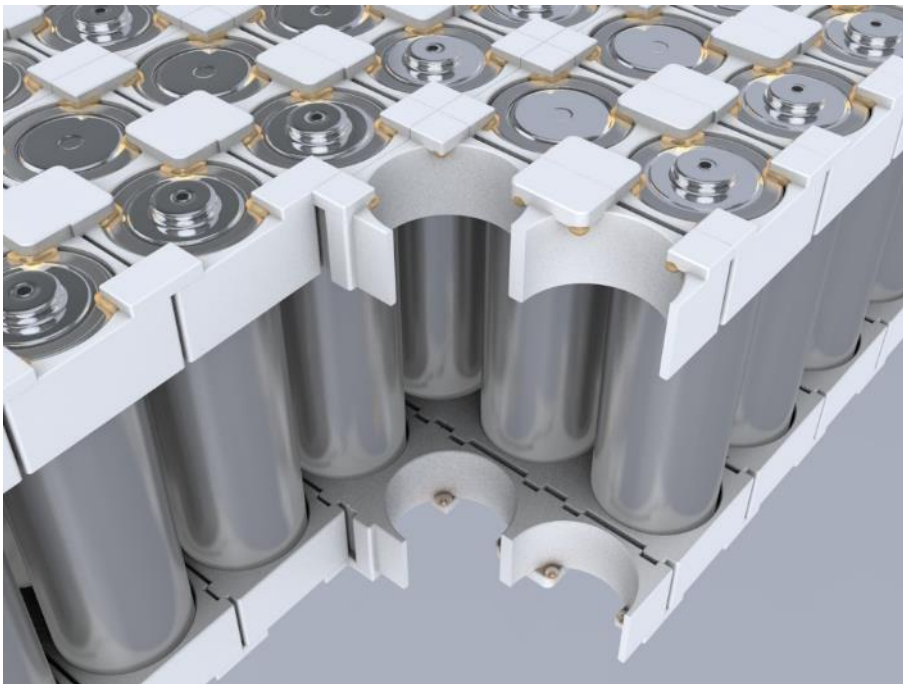
Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies. Henkel Adhesive Technologies is the global leader in the adhesives 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.

Contact	Rosanne Koning	Rita Verschuuren
Phone	+49 151 6800 4501	+31 164 317 024
Email	rosanne.koning@henkel.com	rverschuuren@emg-marcom.com
	Henkel AG & Co. KGaA	EMG

The following illustration material is available at www.henkel.com/press.



Dispensed Bergquist Gap Filler TGF 3010 APS.



Cylindrical cells fixed in a plastic carrier with Henkel's Loctite AA 3963 adhesive.