

Press release

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WACKER to present ceramifying silicone for optimizing thermal barrier performance at the Battery Show in Stuttgart

- Silicone coating for flexible barrier systems protects battery components in the event of thermal runaway
- WACKER also showcases newly formulated potting compounds for thermal management of power electronics

Munich – WACKER will be presenting innovative solutions for battery electric vehicle (BEV) safety at the Battery Show in Stuttgart, Germany, from June 9 to June 11. One of the main areas of focus at the company's booth in Hall 1, Booth K45, will be a ceramifying silicone that significantly improves the heat and flame resistance of thermal barriers. The company will also be showcasing thermally conductive potting compounds for effective temperature control of power electronics components. Because they exhibit little or no sedimentation, such products can be processed even after prolonged storage without involving any complex pretreatment.

When it comes to electromobility, safety and fire protection are key issues for battery pack designers and automotive suppliers. Legal requirements are extremely stringent. In the event of battery failure, battery housings and other protective systems must shield heat and any gases that escape until all passengers have left the passenger cabin. In Europe, five minutes is currently the standard for the complete evacuation of a vehicle. In Asia, even longer evacuation times will soon have to be met.

At this year's Battery Show in Stuttgart, several exhibitors – including WACKER – will be focusing on such protective systems. The company is showcasing a new silicone from the ELASTOSIL® CM line that improves the heat protection and flame resistance of thermal barriers significantly.

After it is applied, the product cures to form a silicone elastomer that is suitable for coating housing components as well as flexible, fabric-like protective systems. At temperatures above 600 °C, this particular silicone loses its elastic properties and forms a ceramic that acts as a protective barrier, shielding the housing and adjacent components from heat and hot gases. Thermal runaway tests with battery cells show that a protective fabric coated with ELASTOSIL® CM is able to reduce the radiant heat of a flame that has a temperature of 1,300 °C to below 150 °C.

The product benefits not only from high flame and heat resistance, but also from another key property. Due to its intrinsic strength, the ceramified silicone acts as a barrier layer. This layer effectively traps particles that are ejected from the defective cell during thermal runaway.

New potting compounds for thermal management

Another booth highlight relates to potting compounds for the thermal management of power electronics components. In the spotlight are ELASTOSIL® RT 7616 TC and ELASTOSIL® RT 7624 TC. They are filled addition-curing silicone elastomer formulations that cure at room temperature. This enables energy-saving processing of large and heavy components. ELASTOSIL® RT 7616 TC has a thermal conductivity of 1.6 W/mK, while that of ELASTOSIL® RT 7624 TC is 2.4 W/mK.

The most important requirements for thermally conductive potting compounds are on-spec thermal conductivity and low viscosity. The latter may cause the particulate fillers in such compounds to sediment after prolonged storage. In that case, the fillers accumulate near the base of the container, where they may also cake together. Redispersing the fillers is time consuming and may even require the use of special mixing equipment.

Thanks to the new ELASTOSIL® RT 7616 TC and ELASTOSIL® RT 7624 TC potting compounds, such issues are now a thing of the past. The rheological properties of both products have been optimized so that sedimentation and agglomeration effects are no longer relevant to customers. If fillers still settle after unfavourable transport and storage conditions, they can be easily redispersed using standard mixing equipment.

ELASTOSIL® RT 7616 TC and ELASTOSIL® RT 7624 TC have a comparatively low viscosity of 5,500 and 8,000 mPa•s (as per DIN 53019), respectively. This means that these products can be used to fill gaps as small as a few hundred micrometers quickly, reliably and bubble-free. They cure at room temperature, which makes oven-free processing of components of any size possible.

ELASTOSIL® RT 7616 TC and ELASTOSIL® RT 7624 TC are heat-resistant and low-emission formulations. They are mainly used in battery chargers in the field of electromobility, in DC/DC converters or in inverters for thermal management of discrete electronic components such as coils or inductors.

Silicones for electromobility

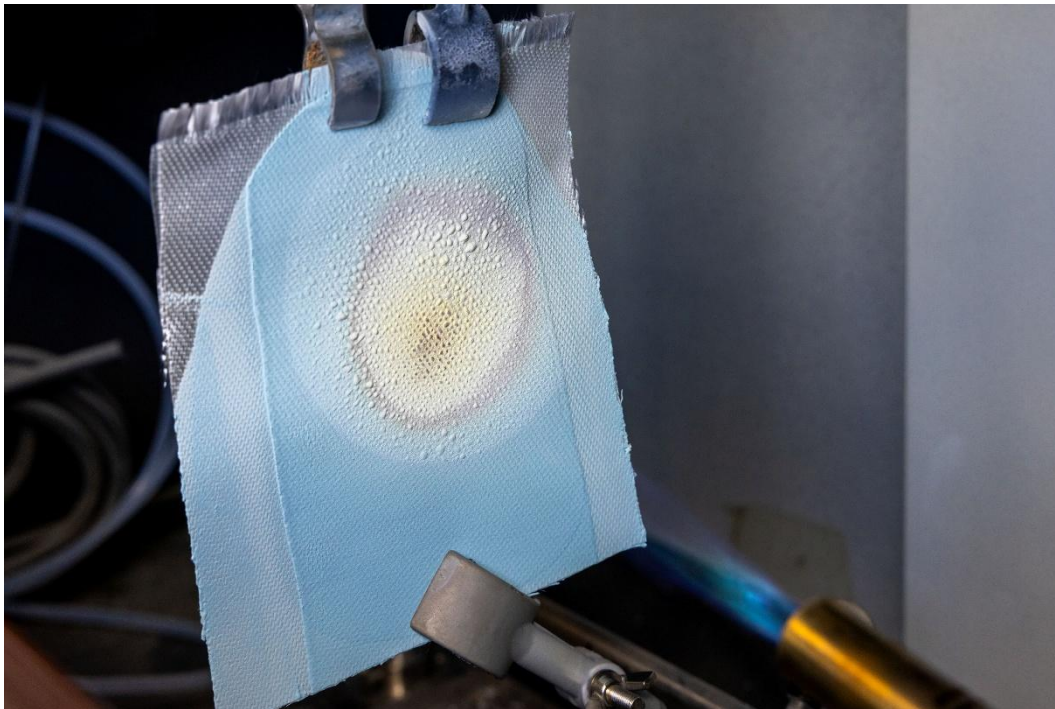
With its ELASTOSIL®, SEMICOSIL®, SILRES®, and WACKER Silgel® brands, WACKER offers a wide range of products and solutions for electromobility. At the Battery Show in Stuttgart, the Group will feature the following products:

* **SILRES® MK** is a condensation-curing methyl silicone resin that is readily soluble in various organic solvents. The product can be used as a binder or impregnating agent for mechanical and thermal barriers. Silicone-resin-bound laminates based on mica, glass fiber or mineral fiber withstand extreme temperatures over the long term. They retain their electrical and water-repellent properties, as well as their high mechanical strength.

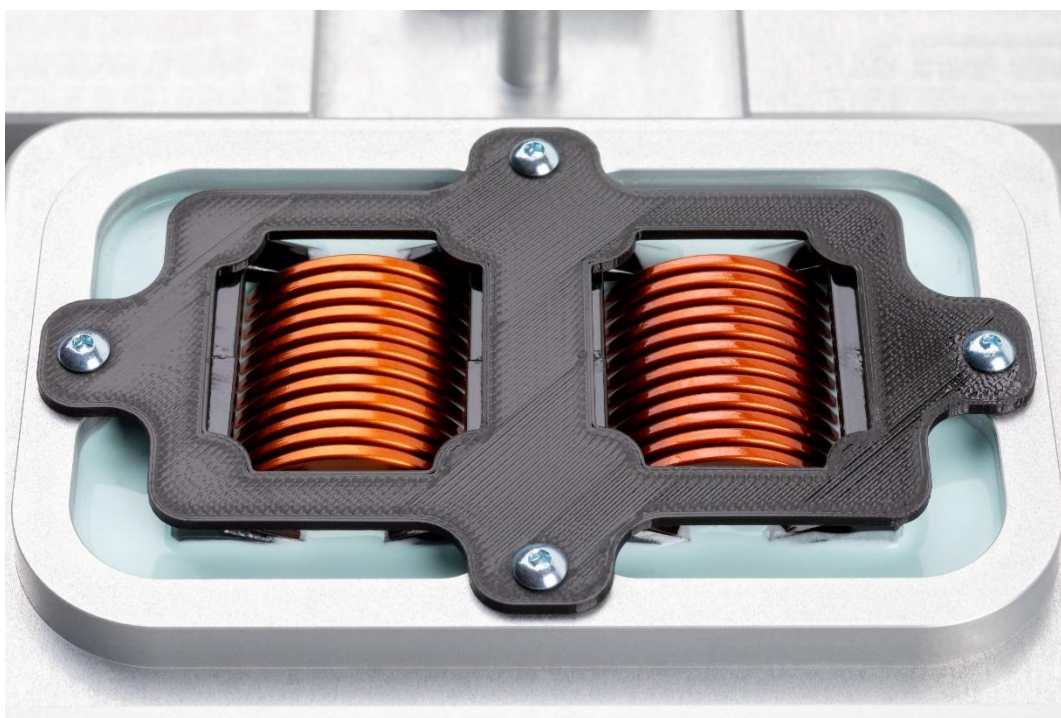
* **ELASTOSIL® CM 18x potting compounds** were developed specifically for the side potting of cells and the top potting of pressure-relief vents. These compounds cure at room temperature to form an elastomer of medium hardness. Self-adhesive grades are available too. In top potting applications, the potting compounds act as a protective layer without impairing the function of the vents. Side potting insulates the cells electrically and thermally. The potting compounds also provide mechanical support and protection. As a result, vibrations, impacts and thermal expansion within the cells can be compensated, without introducing mechanical stress into the cell assembly. As the silicone elastomer acts as a thermal insulator as well, heat transfer via the cell's lateral walls is suppressed too.

* **ELASTOSIL® R 531/60** is a ceramifying silicone rubber for the insulation of busbars in high-voltage batteries. It can be extruded, which makes it possible to provide cost-effective insulation for such components. What is more, this silicone rubber also improves the safety of electric vehicles in extreme situations. In the event of fire, the rubber ceramifies. The busbars thus remain encased in the ceramic layer and stay electrically insulated.

Visit WACKER at the Battery Show Stuttgart 2026 – Booth 1-K45 in Hall 1.



At the Battery Show in Stuttgart, WACKER will be presenting a ceramifying silicone for optimizing thermal barriers in BEVs. This silicone greatly improves the heat resistance and dielectric strength of the battery housing and of other protective systems. Source: WACKER



Among the innovations showcased at the WACKER booth are ELASTOSIL® RT 7616 TC and ELASTOSIL® RT 7624 TC. These thermally conductive potting compounds are used for the thermal management of power electronics components. (Source: WACKER)

Note:

All photos are available for download at: www.wacker.com/pressreleases.

Additional information

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The company in brief

WACKER is a global company with state-of-the-art specialty chemical products found in countless everyday items, with applications ranging from tile adhesives to computer chips. The company has a global network of 27 production sites, 22 technical competence centers and 47 sales offices. With around 16,600 employees, WACKER generated annual sales of around €5.5 billion in fiscal 2025.

WACKER operates through four business divisions. The Silicones and Polymers chemical divisions supply products (silicones, polymeric binders) for the automotive, construction, chemical, consumer goods and medical technology industries. Biosolutions, the life sciences division, specializes in bioengineered products such as biopharmaceuticals and food additives. Polysilicon produces hyperpure polysilicon for the semiconductor and photovoltaic industries.

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