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Electronic potting resin enables long-lasting battery packs for power tools

Ostfildern-Kemnat, Germany. Battery packs designed for modern power tools integrate sensitive components within a compact footprint, while at the same time having to withstand constant exposure to dust, moisture, vibrations and mechanical shocks. With WEVOPUR 512 FLE, WEVO-CHEMIE GmbH offers an optimised electronic potting resin based on polyurethane (PU) that reliably protects lithium-ion batteries and supports efficient, reproducible series production.

High-performance battery systems have been among the key growth drivers in the power tools sector for years. As their use has become increasingly widespread in industry and the skilled trades, the demands on their resilience and service-life have also risen. For manufacturers of modern power tools, battery potting has therefore become a critical step in the production process. The WEVOPUR 512 FLE PU potting compound is a proven solution for implementing various battery designs.

Durability through mechanical decoupling

With a Shore A hardness of 80, this electronic potting resin offers sufficient strength to stabilise printed circuit boards and their components, as well as enough flexibility to provide vibration-damping properties and mechanical protection. Its viscoelastic properties and an elongation at break of approximately 100 per cent further enhance this effect.

The material has also demonstrated its damping performance in shake tests designed to simulate transport and operational stresses.

Excellent flow properties for reproducible battery potting

Once the resin and hardener have been mixed, Wevo's two-component PU system has a viscosity of around 1000 mPa·s and offers excellent flow properties. The potting compound spreads quickly and evenly within complex geometries, fills cavities and minimises the risk of trapped air bubbles. This results in an efficient battery potting process, allowing the material properties that are essential for ongoing operation to take effect.

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To ensure a high potting quality, Wevo optimises further process parameters on request – for example, to achieve precise cycle and processing times.

Reliable battery operation through specific material properties

To ensure the long-term functionality of the battery packs, WEVOPUR 512 FLE also offers optimised adhesion to all common plastics, good thermal conductivity (0.8 W/m·K), corrosion protection and flame-retardant properties in accordance with UL 94 (V-0 / 6 mm, V-2 / 1.5 mm).

Material expertise and application know-how from a single source

As a manufacturer of customised potting compounds, Wevo combines decades of materials expertise with a comprehensive understanding of applications and processes. On request, the company develops tailored polyurethane systems together with its customers. The formulation of WEVOPUR 512 FLE can be precisely adapted to suit the desired processing window. Combined with its further material properties, it offers a needs-based solution for both the power tools deployed in industry and construction as well as those used in the home and garden sector.

Image description and source

WEVOPUR 512 FLE supports the durable and robust design of battery packs for modern power tools (Image source: © WEVO-CHEMIE GmbH, generative AI).

(Please note that the image may only be used in the context of this press information).

About Wevo

WEVO-CHEMIE GmbH is an independent manufacturer in the field of customised potting and casting compounds as well as adhesives and sealants based on polyurethane, epoxy and silicone – primarily for use with electronics and electrical engineering. Wevo products protect sensitive components against chemicals, vibration, foreign matter, dust, humidity and high temperatures. We supply to more than 1,250 customers in over 50 countries from our headquarters near Stuttgart, Germany, and through companies in Asia, China and the USA.

Press information

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