Press information

07 April 2026

Polyurethane electrical potting compound for thermally stable, compact e-wheelchair motors

Ostfildern-Kemnat, Germany. Electric wheelchairs must operate reliably, even under harsh everyday conditions – for example, when a drive wheel locks up and critical temperature peaks occur in the electric motor within seconds. For this reason, an established manufacturer sought a solution to thermally stabilise its motors without compromising installation space or efficiency. In WEVO-CHEMIE GmbH, the company found a development partner for a thermally conductive polyurethane electrical potting compound that combines targeted thermal management with electrical insulation and reliable series production.

Selecting a thermally conductive PU potting compound for sophisticated electronic and electrotechnical assemblies based solely on product data sheets often does not lead to the required results. A manufacturer of electric wheelchairs was unable to prevent rapid motor overheating when wheels were blocked by kerbs or uneven road surfaces using standard products available on the market. Wevo therefore supported the company in material selection and provided application technology expertise throughout the entire process – from material preparation and PU potting to transferring the process to series production.

Polyurethane electrical potting compound for reliable stator encapsulation

At the core of the solution is a low-viscosity PU potting compound that enables reliable processing, void-free penetration and the complete impregnation of the stator windings. The thermally conductive material also ensures continuous heat transfer from the current-carrying copper conductors to the motor housing. The temperature peaks occurring when wheels are blocked are also efficiently dissipated – without hot spots or components overheating.

The polyurethane potting significantly optimises thermal management for this application, reducing the temperature profiles of the electric motors below the originally assumed values while maintaining consistent performance. As a result, the customer requirements for the electrical potting compound defined at the start of the project in terms of temperature resistance and thermal conductivity were effectively reduced.

In addition, measurement data generated at the Wevo technical centre enabled adaptation of the design at an early stage. It was therefore possible to create a compact, planar electric motor that supports the narrow design of state-of-the-art electric wheelchairs and constitutes a key factor in terms of competitiveness.

Early involvement of the material manufacturer

The project demonstrates the importance of involving an experienced material manufacturer at an early stage. Rather than pursuing maximum performance values, the focus was on identifying an application-specific polyurethane potting compound. This ensured the optimal alignment of material properties, process reliability, design and cost-effectiveness – an approach that enables modern components for compact mobility solutions through precise PU potting.

Image description and source

Electrical potting compounds enable safe operation and compact design for wheelchair motors (Image source: © WEVO-CHEMIE GmbH, AI-generated).
(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.

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Press contact

Alexandra Heißenbüttel
Dr. Neidlinger Consulting GmbH
Phone: +49 711 167 61 712
Email: press@wevo-chemie.com