

Reliable protection for high-voltage transformers: Wevo develops transformer potting compounds with rail approval

Ostfildern-Kemnat, Germany. Transformers in rail vehicles must operate reliably under extreme conditions: voltages, vibrations and fluctuating temperatures place stringent demands on the materials used. With its specially optimised epoxy resin potting compounds, WEVO-CHEMIE GmbH offers solutions that combine long-term stability with efficient processing. The materials meet fire protection requirements in accordance with EN 45545-2 standards and combine high thermal conductivity with excellent partial discharge resistance and a low cracking tendency. The result is safe, durable components for use in rail transportation.

When it comes to modern rail transformers, epoxy potting is essential to reliably protect the windings. The low material coverage between the resin and the iron core presents a major challenge for long-term stability and efficient thermal management. However, Wevo's potting compounds have been specially optimised to meet these requirements: their high filler content reduces the thermal expansion coefficient and minimises cracking compared with standard products. This combination lowers stress within the composite as well as mechanical strain, thus ensuring the long-term integrity of the windings.

Epoxy resin potting compounds: electrically insulating and thermally conductive

The complete impregnation of the windings further promotes long-term performance. The epoxy resin potting compounds for high-voltage transformers are used together with an organic hardener that enables extended processing time of up to 90 minutes at 100 °C when potted under a vacuum. The process enables essential partial discharge resistance – preventing small electrical discharges within the winding – and therefore reliable insulation.

In addition to electrical stability, thermal properties are crucial to the reliability of modern transformers. Wevo's thermally conductive potting compounds are specially optimised to allow efficient heat dissipation, even during short-term thermal peaks. The results are cooler windings under load, lower operating temperatures and support for long-term stability.

Flame-retardant epoxy potting resins with rail approval EN 45545-2

Excellent flow properties are also ensured, making the epoxy resins suitable for processing large transformer cores. For an efficient production process, the systems can also be easily homogenised, despite their high filler content.

The flame-retardant potting resins have been tested in accordance with rail approval EN 45545-2 and also meet UL 94 V-0 standards. They therefore fulfil the essential requirements for potting materials in rail vehicles and for use in technically demanding high-voltage transformers.

Further epoxy applications: e-motors and distribution networks

Apart from their rail-related applications, Wevo's potting compounds are also suitable for indoor insulators in distribution networks as well as for the stator potting of electric motors – applications that require high electrical stability through precisely tailored properties to ensure long-term performance. This enables Wevo to support rail, energy technology and electric vehicle manufacturers in the safe, efficient design of high-performance components.

Image description and source

In modern rail vehicles, transformer potting compounds from Wevo-Chemie ensure permanently safe power conversion (Image source: © kontolasu – stock.adobe.com/– istockphoto.com, AI generated). (Please note that the image may only be used in the context of this press release).

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 electrical and electronic components. 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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