Press information

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Electronic potting resin reliably protects rapid shutdown boxes in photovoltaic systems

Ostfildern-Kemnat, Germany. In an emergency, rapid shutdown boxes switch off photovoltaic (PV) modules or strings in a controlled manner within a very short time, thus protecting rescue services from exposure to hazardous voltages. They also ensure the safety of employees during maintenance work. The safety-related electronic components must be able to withstand not only environmental impacts, but also mechanical and thermal stresses on a permanent basis. The WEVOPUR 512 FLE electronic potting resin developed by WEVO-CHEMIE GmbH is a proven solution for the long-term functionality of these boxes. The properties of the low-viscosity polyurethane potting compound include high corrosion resistance, permanent elasticity, a low thermal expansion coefficient and good thermal conductivity.

Safety requirements for PV systems are becoming increasingly stringent worldwide, which means that shutdown devices for swiftly reducing voltage are gaining in importance. In the USA, rapid shutdown is already mandatory and governed by the National Electrical Code (NEC). WEVOPUR 512 FLE has been optimised for use with the electronic components required in these systems; the thermally conductive PU potting compound enables energy technology manufacturers to develop shutdown boxes that meet the rigorous North American standards and are therefore broadly accepted worldwide.

Optimised material properties for safe operation

Wevo has optimised the electronic potting resin in terms of several key properties:

- **Permanent bonding with the housing:** The potting compound reliably protects electronic components from moisture and mechanical stress.
- **Targeted thermal management:** WEVOPUR 512 FLE safely and reliably dissipates the heat generated during operation.
- **High corrosion resistance:** The specially developed formulation prevents electrochemical corrosion from forming on the printed circuit boards used – the protective effect has been scientifically verified by the Technical University of Denmark.
- **Good temperature resistance:** The combination of low expansion coefficient and elastic properties effectively compensates for stresses caused by temperature fluctuations.

WEVOPUR 512 FLE complies with all international norms, standards and safety requirements. The polyurethane potting compound is certified in accordance with UL 94 V-0 at 6 mm and V-2 at 1.5 mm, enabling flexible designs for electronic components. Moreover, the 2K polyurethane system is PFAS- and TPP/TEP-free (SVHC-compliant).

Polyurethane potting for efficient series production

The processing properties are designed for efficient series production, the pot life of just a few minutes guarantees short cycle times. The product's excellent flow and wetting properties ensure that electronic components such as printed circuit boards are reliably encapsulated, reducing the risk of air pockets forming. As a result, the manufacturing process can be carried out without an additional evacuation step after potting – a distinct advantage in terms of process reliability, throughput and cost-effectiveness.

Further applications in modern electronics

In addition to its use as a polyurethane potting compound for shutdown boxes in PV systems, WEVOPUR 512 FLE is also suitable for battery systems and battery packs for power tools, as well as for transformers, capacitors and sensors. The combination of good heat dissipation, corrosion protection and reliable processing makes the electronic potting resin a versatile solution for high-performance electronics.

Image description and source

Polyurethane potting compound from Wevo optimised for rapid shutdown boxes in pv systems (Image source: © WEVO-CHEMIE GmbH).
(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 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.

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