



BATTERY ASSEMBLY MATERIAL SOLUTIONS BETTER E-VEHICLES START WITH SIKA

LIGHTER | STRONGER | SAFER | QUIETER | GREENER

BUILDING TRUST



MOVE E-VEHICLES FORWARD WITH SIKA

As electric vehicle design evolves, so too does the variety of materials used in the construction of electric powertrains. Thanks to deep experience and knowledge from the automotive industry and an extensive range of products, Sika helps manufacturers successfully manage these changing material demands.

For the changing demands of new energy vehicle (NEV) battery systems, Sika delivers innovative solutions for sealing, bonding, thermal interface materials, and potting applications.



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A white industrial robotic arm is shown in a factory setting, applying a yellow adhesive to a metal frame. The frame is positioned on a conveyor belt. The background is blurred, showing other industrial equipment and lights. The text is overlaid on a semi-transparent white box in the center of the image.

E-VEHICLE BATTERY PROTECTION

IS ENABLED BY SIKAPOWER® ADHESIVES,
STRENGTHENING THE STRUCTURE AND PROTECTING
AGAINST CRASH IMPACT

STRUCTURAL BONDING SOLUTIONS

THE PERFECT SOLUTIONS WITH SIKA:

Sika offers the broadest range of products in the industry and continually develops new bonding solutions that overcome challenges such as adhesion to unrelated metals, plastics, and composites; while offering heat and glycol resistance. These include 1C or 2C epoxy and 2C polyurethane technologies. The products offer flexibility in the manufacturing process, the potential for increasing throughput, as well as industry-leading performance.

With over 100 years of experience, Sika offers its customers a global production footprint that enables us to create reliable supply chains and deliver high-quality adhesives worldwide. Furthermore, Sika is able to support customers locally with technical expertise accumulated and refined over the years.



| Technology Base | Products | Characteristics | Lap-Shear Strength (MPa) | Applications |
|------------------|------------|---|--------------------------|---|
| 1C, Epoxy | SikaPower® | <ul style="list-style-type: none"> ■ Adheres well to oily substrates ■ Wash-out resistant ■ Can be spot-welded ■ High strength ■ Suitable to join different metals | 20 - 30 | <ul style="list-style-type: none"> ■ Battery tray |
| 2C, Epoxy | | <ul style="list-style-type: none"> ■ High fatigue resistance ■ High impact resistance ■ Very good application properties | | <ul style="list-style-type: none"> ■ Structural cross members ■ Battery Tray |
| 2C, Polyurethane | SikaForce® | <ul style="list-style-type: none"> ■ Structural and flexible ■ Stable mechanical properties over temperature range | 3 - 15 | <ul style="list-style-type: none"> ■ Structural cross members ■ Housing structure ■ E-Coated parts |

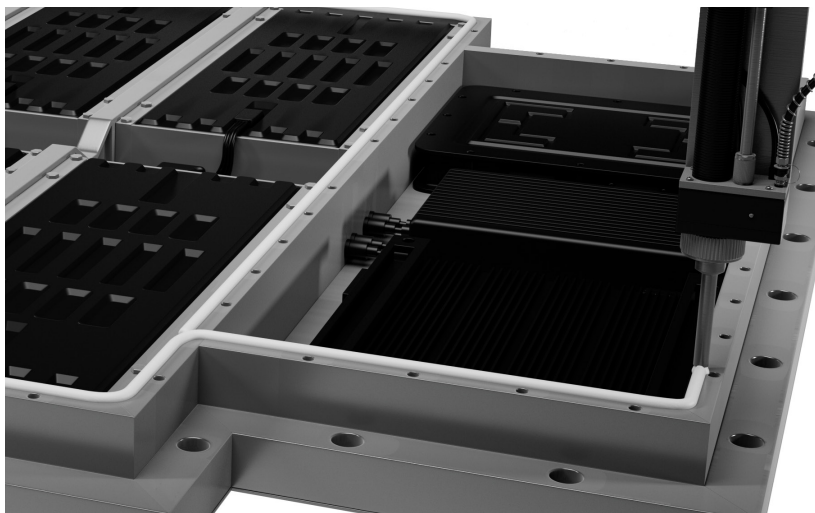
A photograph of an industrial manufacturing process. Two white robotic arms are positioned over a large, rectangular battery pack assembly. The battery pack consists of numerous orange-colored cells arranged in a grid. The robotic arms are equipped with precision tools, likely for welding or securing the cells. The background is a blurred industrial setting with various machinery and components.

PARTNER WITH SIKA,
AN INDUSTRY LEADER IN ADHESIVE
TECHNOLOGY SOLUTIONS

SEALING SOLUTIONS FOR BATTERY SYSTEMS

SEALING IS AT THE HEART OF WHAT WE DO. From the very first sealant method developed over 100 years ago, our core competency has remained the same; being a market leader in the field of sealant technologies. Our long-term experience allows Sika to pull on this experience to produce new and modern solutions for the highly technical demands of the battery market.

Automated application of Sikaflex® sealants along with SikaBooster® technology is commonplace in many industrial and automotive settings. With this level of expertise available to our customers Sika is a reliable partner for developing processes in the application of battery enclosure sealing materials. Utilizing SikaBooster® technology allows for fast and secure sealing of the battery pack so end of line pressure and leak tests can be conducted quickly allowing the fast flow of product at end of line.



Enclosing the battery pack, also called battery lid sealing is made secure with Sikaflex® and Sikasil® materials. After application, the wet applied product will conform to many surfaces and allow for tolerances across the pack to achieve the seal required from water, air and dust ingress. Sika can support these applications with adhesion tests to the materials used in the pack to ensure the right product is chosen for the application.

| Technology Base | Products | Characteristics | Elongation at Break | Applications |
|----------------------------|--------------------------|--|---------------------|---|
| 1C, Silicone | Sikasil® | <ul style="list-style-type: none"> ■ Easy application ■ Excellent temperature resistance | 100 - 500% | <ul style="list-style-type: none"> ■ Lid sealing ■ Pack sealing |
| 1C, Polyurethane + Booster | Sikaflex® + SikaBooster® | <ul style="list-style-type: none"> ■ Accelerated curing ■ Fast green strengths | | |
| 1C, STP | Sikaflex® | <ul style="list-style-type: none"> ■ Versatile dispensing methods ■ Easy automation | | |
| 2C, STP | | <ul style="list-style-type: none"> ■ Solvent- and isocyanate-free ■ Good gap-filling capabilities ■ Great weathering and aging resistance | | |



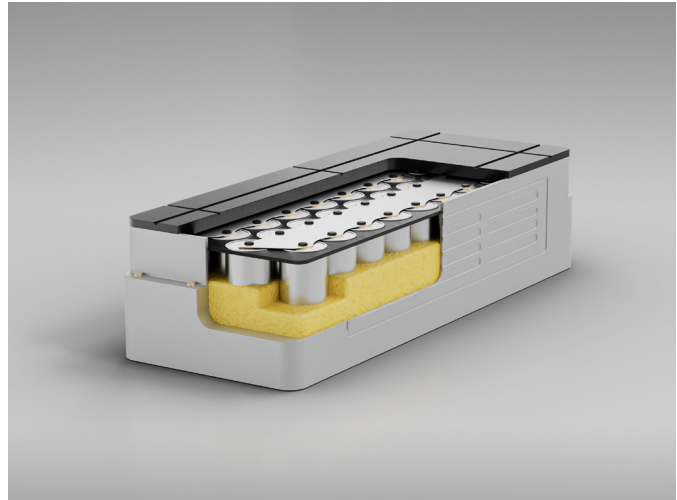
> 1 MILLION BATTERIES

FOR E-MOBILITY ARE PRODUCED ANNUALLY USING
SIKA PRODUCTS FOR SEALING & BONDING AND
THERMAL MANAGEMENT

THERMALLY CONDUCTIVE GAP FILLERS

CHARGE YOUR AMBITION WITH SIKA. Using our long-term experience in dielectric potting, Sika has developed thermal interface materials for battery systems that ensure optimal heat transfer in battery packs and modules.

SikaBiresin® is used for Thermally Conductive (TC) gap filling applications. It also serves as a functional interface in the battery arrays and works interactively to provide heat transfer for active temperature control systems of the battery packs.

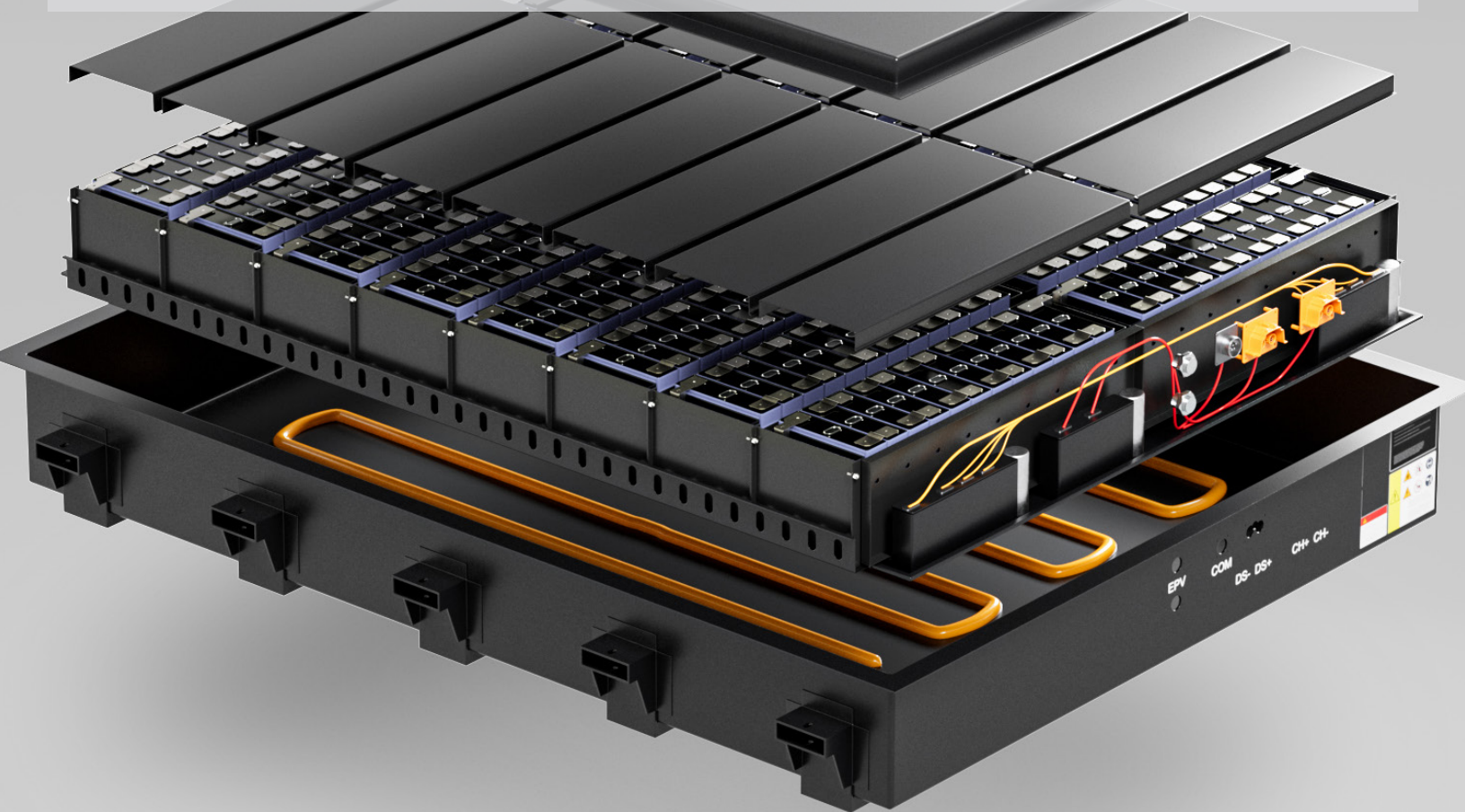


| Technology Base | Products | Characteristics | Thermal Conductivity (W/m.K) | Applications |
|-----------------|--------------|---|------------------------------|--------------------------------------|
| 2C, STP | SikaBiresin® | <ul style="list-style-type: none">■ Low compression forces■ Repairable | 2.2 | ■ Module to cooling plate gap filler |



ENERGIZE YOUR AMBITIONS

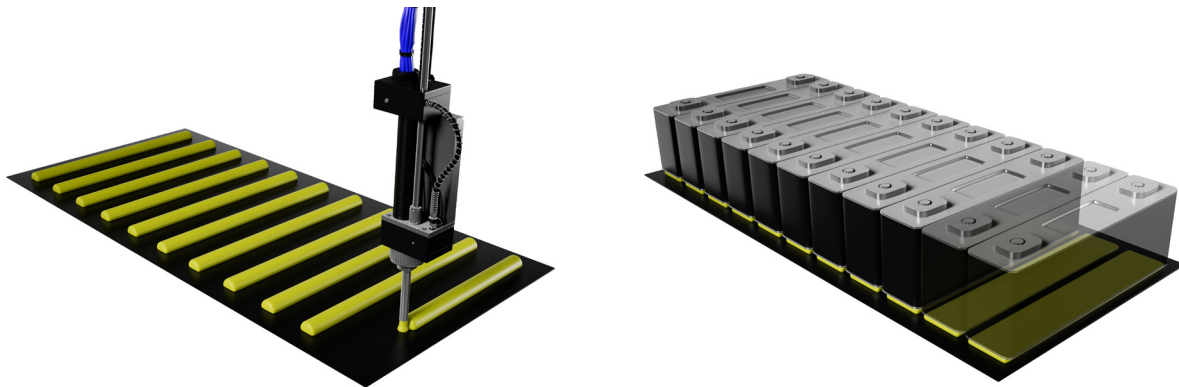
FOR BATTERY PACK DESIGNS WITH SIKA
BATTERY ASSEMBLY MATERIAL SOLUTIONS



THERMALLY CONDUCTIVE ADHESIVES

THE RIGHT TECHNOLOGY. Thermally conductive adhesives (TCA) offer added benefits for manufacturers seeking to meet future requirements. As manufacturers transition to Cell-to-Pack designs in order to improve the stiffness and torsional characteristics of the vehicle's body structure, bonding with heat-conductive adhesives will become more common.

Sika's high-performance bonding solutions offer thermal-conductivity and electrical isolation characteristics for packing the cell arrays inside the modules or packs.

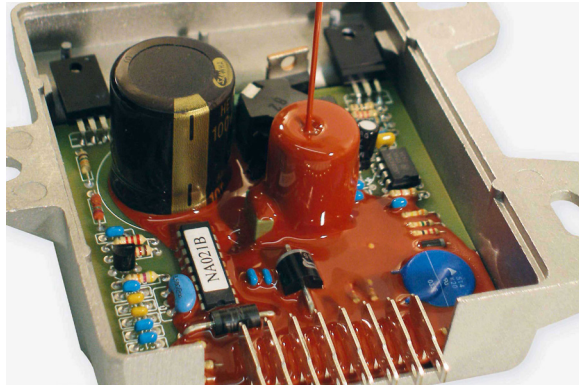


| Technology Base | Products | Characteristics | Thermal Conductivity (W/m.K) | Applications |
|------------------|------------|---|------------------------------|---------------------------------|
| 2C, Polyurethane | SikaForce® | ■ Long open time ■ High elongation | 1.0 - 1.7 | ■ Cell to cooling plate bonding |
| 2C, STP | Sikaflex® | ■ Excellent adhesion to a variety of surfaces | | |



>30% OF BEV'S PRODUCED
ANNUALLY USE SIKA TECHNOLOGY

POTTING AND ENCAPSULATION SOLUTIONS

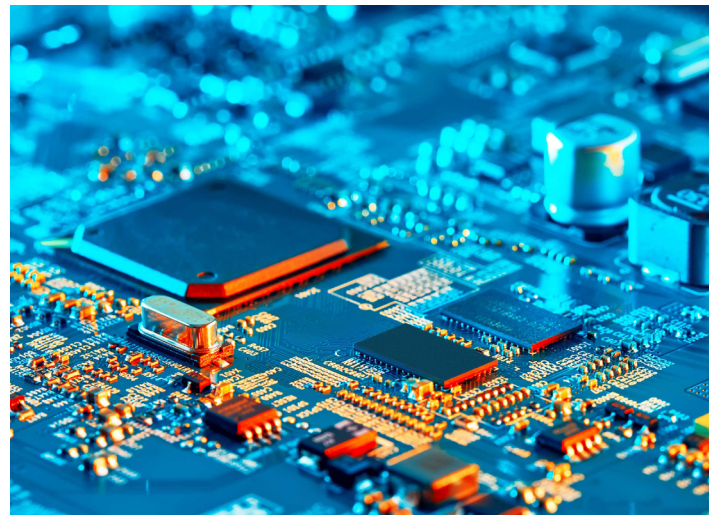


Sika offers a wide range of potting and encapsulation solutions in the automotive industry.

APPLICATIONS

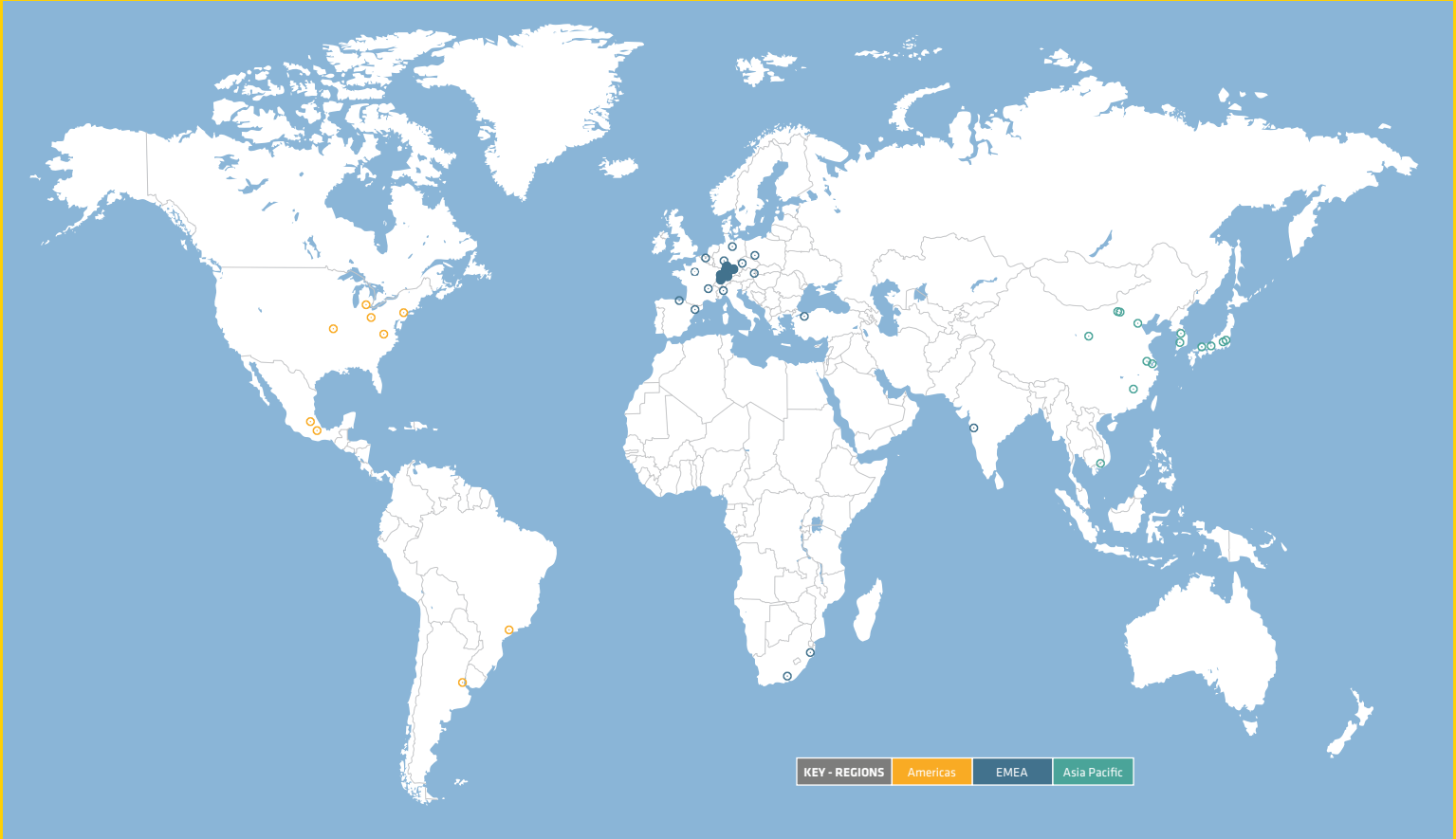
- Capacitors
- Relays, transformers
- Sensors
- Electronic boards
- Coils, electronic devices and filters
- Others

Our resin systems can withstand the high temperatures associated with lead-free soldering processes. Their purity is combined with excellent mechanical and chemical stability, minimizing contamination and maximizing safety during the handling of sensitive electronic components.



| Technology Base | Products | Characteristics | Gel Time (Mins) | Mixed Viscosity (Mpa) | Applications |
|------------------|--------------|--|-----------------|-----------------------|--|
| 2C, Polyurethane | SikaBiresin® | <ul style="list-style-type: none"> ■ Semi-flexible ■ Low viscosity ■ Self-extinguish ■ UL 94 V0, UL 746 HAI, HWI | 22 | 1,650 | <ul style="list-style-type: none"> ■ Casting ■ Potting |
| | | | 50 | 1,100 | |

GLOBAL REACH BUT LOCAL PARTNERSHIP



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Please consult the most current local Product Data Sheet prior to any use.

