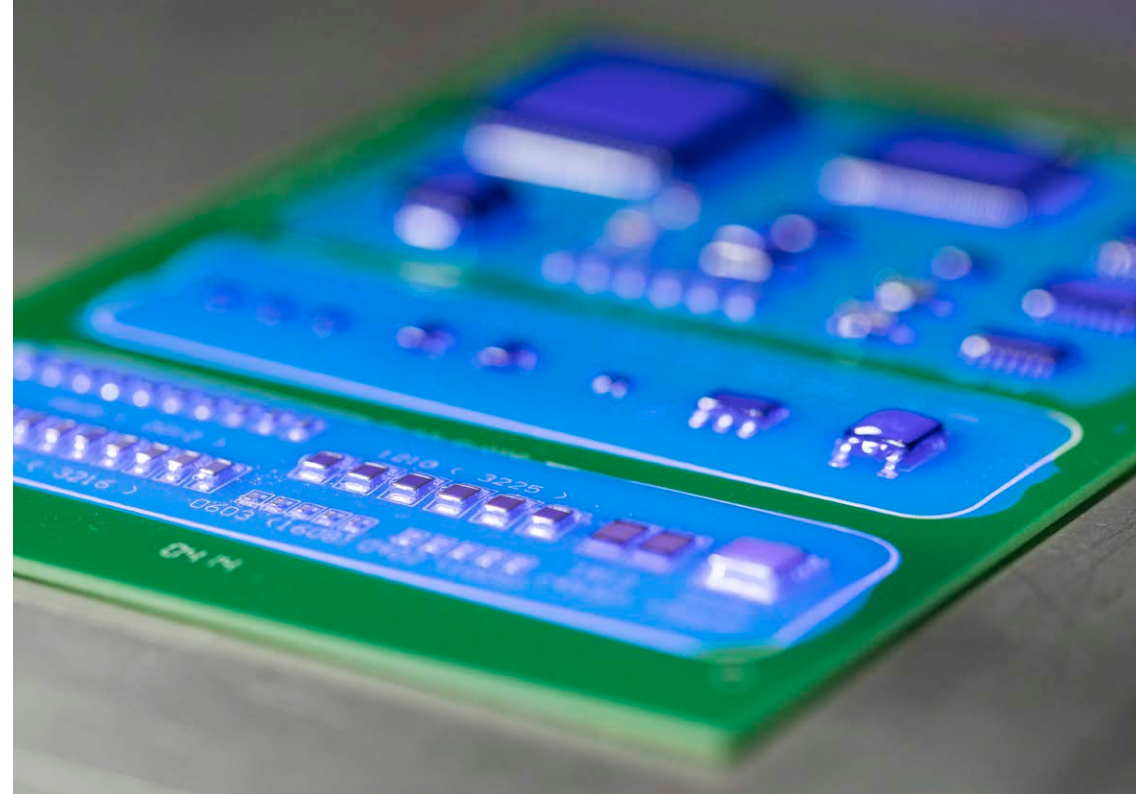


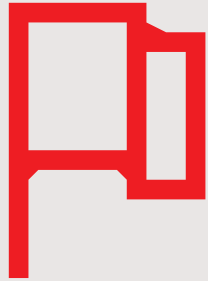


LOCTITE®

CASE STUDY

**Conformal Coating Fuels Energy
Conservation and Cost Reductions
for EV Chargers Manufacturer**





Customer Challenges

- An AC and DC EV charging technology innovator wanted to improve its conformal coating processes. The coatings protect the rectifier printed circuit boards (PCBs) for the power supply system within EV chargers.
- The project's objectives included maintaining or enhancing product reliability, reducing energy consumption, simplifying and accelerating processing, and lowering overall costs.
- Conformal coatings are vital materials used to protect electronic components and subsystems from the effects of contamination from moisture, mixed gases, and environmental extremes. They are especially critical for high-power electronics.



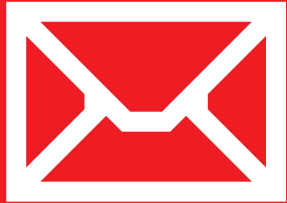
Process and Performance Requirements

- Because the customer's existing conformal coating material was a solvent-borne, VOC-containing formulation requiring a two-step process to achieve target thickness, it was time-consuming and energy-hungry. Two cycles of flash-off (15 mins. each) and oven curing (30 mins. each), totaling one and a half hours were required.
- Material cost and waste were significant, as nearly 78% of the material was solvent, so only 22% of solids remained on the PCB after flash-off. This required a second pass to achieve the material thickness needed. In addition to the coating thickness challenge, cost was a concern. The customer was paying by volume for a product and $\frac{3}{4}$ of it was being evaporated into the environment.
- Given the demands on EV charging infrastructure, material reliability and compliance with the highest industry electrical and flammability standards are also required. The existing material demonstrated inconsistent performance during high-voltage testing.

Henkel Solution

- Henkel's conformal coating, **LOCTITE® STYCAST CC 8555**, addressed many of the customer's challenges. The material is a one-part, VOC-free formulation that provides robust PCB and component protection for high-power electronics in extreme environments like outdoor EV charging stations.
- In an evaluation versus the customer's previous conformal coating, LOCTITE® STYCAST CC 8555 demonstrated:
 - **Processing**—Better wetting and no-voiding coating uniformity were observed, even at a lower thickness than the previous coating material. LOCTITE® STYCAST CC 8555 also provides a fast UV cure with no oven drying necessary, eliminating process time and reducing energy use and costs.
 - **Material volume**—LOCTITE® STYCAST CC 8555 delivered consistent coverage with one-third to one-half of the sprayed volume of the solvent-based conformal coating. Waste and environmental volatiles are also reduced, saving cost and providing a sustainable solution.
 - **Reliability and Standards Certification**—Henkel's conformal coating meets the industry's most stringent reliability standards, achieving a UL 746E rating and a UL 94 V0 flammability rating. During the evaluation, LOCTITE® STYCAST CC 8555 passed all high-voltage testing metrics, indicating its reliable performance in this application.
- After transitioning to the award-winning LOCTITE® STYCAST CC 8555, the customer has improved throughput, lowered costs by over \$100,000 annually, and realized a 100% ROI in just three months. Products built with LOCTITE® STYCAST CC 8555-protected PCBs are operating successfully in the field.

GET MORE PRODUCT INFO



Related Links

Learn more about our conformal coating solution.

Watch the webinar – Introducing a new conformal coating solution to industry challenges.

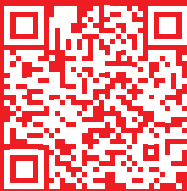
Explore Henkel's solution portfolio for EV Charging Infrastructure.

Read an article – Gearing Up for the EV Road Ahead.

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