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Case Study: Setting a New Standard for Solar Enclosure Strength





Benefits Beyond the Bottom Line

“As a small business that focuses on innovating to solve pain points for installers and electricians, it’s important that we have a partner that collaborates and helps us problem solve. Aurora Material Solutions has been this partner in many ways, helping us pick the right material and validate the material. They’ve allowed us to create a competitive advantage in the market.”

Kyle Baum, President of EZ Solar

Durability is a critical requirement for plastics OEMs across nearly every industry. When those plastics are engineered for solar enclosure installations, the demands for durability extend far beyond basic parameters.

Solar installations are brutally tough on plastic components. Solar components experience significantly more UV and heat exposure than traditional construction materials since they are installed on south-facing roofs to maximize sunlight. Enclosures must stand up to impact and weather extremes, including standing water, cold weather cracking, hail and foot traffic. Since many solar components are used around penetrations, the plastic materials must deliver a long-lasting water-tight seal – meaning no warping or bending, even under extreme heat.

“Harvesting and utilizing solar energy requires incredibly durable components,” explained Kyle Baum, President of EZ Solar, a manufacturer of high-quality solar enclosures, junction boxes and raceways made from advanced durable polycarbonate. “Many people on our product team have been residential solar installers, so we understand the durability needs and pain points that happen on a roof. Our goal is to solve these problems with product designs that stand up to long-term use. We’re constantly looking for ways to innovate in terms of installation ease and performance.”



Developing the “Toughest Enclosure Box” In the Solar Industry

With innovation top-of-mind, EZ Solar began looking for new ways to meet their plastic supply needs. “We have some great engineers on our team, but they are not plastics engineers,” said Baum. “We knew we needed a partner that could think creatively on how to solve the challenges of solar installation.” That meant reaching out to Aurora Material Solutions.

As a material supplier, Aurora Material Solutions works directly with OEMs to provide compounds that deliver the strength and versatility needed across a range of applications. Since the company’s formulas are fully customizable, manufacturers can get exactly what they need to maximize performance.



Meeting the Challenge Through Testing

EZ Solar’s products carry a 25-year warranty, so the company needed a compound that met their performance demands and stood up to extensive testing. They also need to ensure the material and resulting enclosure supported compliance within UL 1741-listed systems and met the requirements needed for Type 3R ratings.

EZ Solar’s product design, installer experience and application-specific requirements provided the insights needed for Aurora Material Solutions to develop a customized AuroraGuard™ PC. Aurora Material Solutions engineered the PC with unique performance benefits, including an elevated Relative Thermal Index (RTI) of 125°C, increased impact resistance and UL F1 weatherability. Then, Aurora Material Solutions put the compound through a battery of tests at its Evansville, IN facility. These included accelerated UV testing that simulated 2,000 hours of exposure and BYK-Gardner impact tests. These tests are widely accepted, industry-standard methods used for evaluating outdoor electrical enclosure performance.

In addition to lab testing, EZ Solar’s field knowledge took this validation a step further. The company conducted real-

world durability testing in solar-specific applications, including testing how the material would handle cold weather, foot traffic and rooftop impacts.

“Aurora’s testing capabilities, combined with our onsite testing, gave us a clear picture of how the PC blend would meet our requirements,” said Baum. Testing also allowed Aurora Material Solutions to tweak and perfect the PC for smooth processing on EZ Solar’s manufacturing equipment. “Aurora offered us more than just products – they also helped us validate and troubleshoot when needed. They offered a level of support that allowed us to minimize costs while improving performance,” explained Baum.



Data Supports More Than Development

The testing data not only helped EZ Solar during product development, but it also proved useful in marketing materials. “The data helps our customers understand how much better our products perform compared to other options in the industry. It gives us an incredible competitive advantage,” said Baum.

Performance and cost savings are just two of the benefits the solar provider has already experienced. AuroraGuard™ PC is projected to save EZ Solar annually in raw material costs while cutting scrap and disposal expenses. Plus, EZ Solar’s components now deliver the innovative durability their customers expect – with superior impact strength in cold weather, enhanced UV protection, and a top-tier 5VA flame-resistance rating at 3.2 mm.

“It’s not only a great material, but it’s available. We’ve had issues with supply chain challenges with other suppliers,” said Baum. “Aurora makes sure we have what we need.”

Not only that – Aurora Material Solutions helps the company continue to look towards the future. “Having worked with distributors, it’s been helpful having a direct line of communication with a material supplier. We are constantly innovating – we’re working on 30 different products right now. If we have a question about different blends, we can go straight to the experts.”



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Our plants' quality management systems are certified to ISO 9001:2015.

We continuously strive to lead the industry in quality products you can trust. For more information on products and services from Aurora Material Solutions, call us today at 330-422-0700 or visit us at www.auroramaterialsolutions.com.

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