

Challenge Accepted.

# FORM MEETS FUNCTION WITH NEW ATV CARGO RACK MATERIALS



» CASE STUDY: AVIENT DISTRIBUTION



## UPDATES TO AN ATV CARGO RACK ADD CONSUMER APPEAL AND DECREASE PRODUCTION COSTS

### THE CHALLENGE

Regarded as a market leader for innovative product design and consumer-friendly products, one off road vehicle manufacturer came to Avient with the need for a design update to an existing metal cargo rack on one of their popular ATVs. This project emerged out of the company's ongoing drive to improve manufacturing efficiency and to create smartly designed vehicles that are attractive, high performing, light weight and cost effective to produce.

Engineers at the company were finding that the existing rack support system, made of painted steel tubing, did not allow for the design freedom needed to meet ever-changing consumer trends. The designers were looking for a material that could offer the ability to create designs based on market drivers rather than material constraints.

Because the company had a keen eye on market needs, they knew that the off road consumer's purchasing decisions are often driven by three variables: aesthetics, cost and performance. This particular ATV's incumbent steel cargo rack had to be painted, a costly secondary process, in order to achieve an appealing look. Additionally, it was falling short of expectations in its strength-to-weight ratio and usability—the design was overdue for an upgrade.

The company approached Avient for help in using polymers that would allow for improved design, a lighter, more user-friendly system, and an overall decrease in costs. The new material would also need to be resistant to impact, provide gripping capabilities, and stand up to both chemical cleaners and the outdoor environment.

### THE SOLUTION

Avient's technical support team got involved early in the company's redesign process, offering both material selection and processing input. The collaborative team came up with a switch from steel tubing to injection-molded thermoplastics and thermoplastic elastomers (TPEs). This allowed the company to eliminate the costly painting

step, while also adding molded-in features for heightened user experience and product differentiation. The new features included elevated ridges for improved cargo holding, edges and holes for use with tie-downs, and cutouts for use with the company's proprietary accessory system.

The collaborative team identified an impact-resistant, glass-filled polypropylene overmolded with Avient's Versalloy™ TPE material to provide a high-strength core, impact resistance, weather and chemical resistance, and gripping capabilities. Avient technical support was instrumental throughout the process, providing services such as finite elemental analysis (FEA) of the mold, gating recommendations to maximize aesthetics, and production start-up assistance, to name a few.

### THE IMPACT

Finding a material that would not compromise on the premium quality associated with the company's top-of-the-line off road vehicles was critical. A trusted supplier with deep industry knowledge and material expertise, Avient was able to help this company expand the design and function of the cargo rack to accommodate an ever-increasing accessory-driven market and the consumer desire for a good-looking ride. Furthermore, by eliminating the extra step of painting, the company cut costs and delivered consumers a cargo rack that offered additional functionality with improved cargo holding features. The Avient team worked closely with the company throughout the process and acted as a single materials supplier and solutions provider.

The end result? A more thoughtful design with added function and consumer appeal, at less cost to the company.

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