



SUCCESS GUIDE

Powersports

[Formerra.com](https://formerra.com)

In the dynamic world of powersports, design engineers face the unique challenge of crafting vehicles that excel in both performance and aesthetics under the most extreme conditions. Formerra brings a wealth of materials experience in this sector, offering advanced polymer solutions, specialized additives, and innovative color and design strategies. These not only help differentiate products but also manage costs and deliver the exciting, dependable vehicles that customers love. From tackling lightweighting and ergonomic engineering to addressing heat management, chemical resistance, and vibration reduction, our deep materials expertise is here to support clients at every stage of a project.

Learn how Formerra's unique combination of deep technical expertise and proactive client care helps powersports OEMs overcome development and production challenges to get their vehicles out on the trails.



Success Story 1

THE CHALLENGE

A leading powersports vehicle manufacturer had cut four tools to the wrong shrink rate, making all the door panels for one of their products too small. This also resulted in windows of the vehicle sticking in cold weather. The new thermoplastic solution needed to withstand the same use case as the incumbent, as well as all types of environmental conditions. The client preferred to utilize existing tooling, as rebuilding new tools for the project could potentially cost upwards of \$1M+.

THE SOLUTIONS

Formerra worked to create and sample a custom TPO from our supplier, Geon, that was able to produce parts that were in the middle of the specification range.

Leading
powersports vehicle
manufacturer avoids
major retooling
and preserves
performance with
material conversion



Success Story 1 (continued)

THE RESULTS

The customer was able to correct both the shrink and window-sticking issues without the need for a major retooling, which would have resulted in an additional six months of running production at a high scrap rate. In particular, Formerra's assistance in resolving the cold weather window-sticking issue was a major factor in material approval and saved valuable time and capital that would otherwise have to be spent on additional testing.

THE KEY TAKEAWAYS

This project demonstrated Formerra's adaptability to a challenge. It may have seemed to most people that the obvious answer was to scrap the tooling and rebuild it to produce approved parts, but Formerra approached the issue from a material science point of view. Thanks to technical polymer expertise and familiarity with its expansive portfolio, Formerra was able to recommend a custom performance material solution from a supplier that would allow the client to utilize the same tooling, with molding process optimization, to produce parts that met the tight specifications.

Formerra's value-add goes both upstream and downstream, not only solving the problems for customers, but also giving them access to the extensive portfolio of materials, direct line-of-sight to industry experts, and coordinated conversations with leading suppliers.

Success Story 2

THE CHALLENGE

A high-profile powersports brand was experiencing high scrap rates (between 30-40%) when producing an off-road vehicle hood panel, one of the most cosmetically intensive vehicle components in a market where cosmetics are a top selling point for customers. The client's hood panels were failing appearance quality inspection due to post-painting issues, including splay, fog, burn marks, flow lines, unmelted particles, and bubbles. The incumbent material was also demonstrating performance issues in cold weather, a major drawback in vehicles that are frequently subjected to extreme weather, UV exposure, and rough terrain/handling.

On top of the material performance issues, when parts were scrapped, the tooling then needed to be cleaned to prevent additional fogging, which resulted in up to five more parts being scrapped immediately upon restarting production. This scrapping-cleaning process was occurring nearly every 2 hours, exponentially increasing the client's scrap rate.

The client wanted to address all of these issues with a solution that was compatible with the tooling that was already built for TPO material. They did not have experience in molding nylon (hygroscopic resin).



High-profile
powersports
brand and
suppliers
reduce hood
panel scrap
rate by 30%

Success Story 2 (continued)

THE SOLUTIONS

Formerra was able to provide comprehensive technical support from concept to production between Formerra ADTS and Avient ADTS, and conducted both FEA and mold flow analyses. Based on the team's recommendations, the client elected to use Avient Artisan, a pre-colored thermoplastic with better impact performance and scratch/mar performance versus a traditional TPO. The material's lack of read-through makes scratches less visible, even on the glossy surface of a hood panel.

This project also resulted in the creation of a material troubleshooting guide — a living document now used across the client and their molders.

THE RESULTS

Implementation of Formerra's solution resulted in the client's scrap rate dropping from 40% to 10%, along with a cycle time reduction from 130 to 120 seconds. Formerra was also able to customize material colors to match the client's brand identity and preference, and improve overall part-to-part color consistency. This eliminated the need for paint, creating a more environmentally friendly process by drastically reducing VOC generation. Without consideration to the cost-savings by eliminating the painting process, the annual economic savings for the client is \$344,000 USD.



Success Story 2 (continued)

KEY TAKEAWAYS

This project showcases how a close relationship with an OEM can result in a beneficial result by rethinking standard industry processes. The unique value of working with plastics is that some processes can be combined to create an overall better product. In this case, eliminating the painting process and incorporating color into the mold allowed the client to not only reduce cost, but also reduce their carbon footprint without sacrificing their brand identity.

The client's OEM plant capacity allowed them to outsource many of the tools to produce similar parts with their molders, who were experiencing the same issues with the incumbent materials. The lessons learned with the client were replicated with the molders including process, tooling, design, moisture analysis and control learnings. As a result, improved results were achieved in a short period of time by replicating the success with the client at each of their subsequent molders. The scrap rate with the molders was initially 20% and growing; implementing the lessons learned with Formerra's primary client rapidly decreased the values to 10%.

Success Story 3

THE CHALLENGE

A well-known powersports brand needed to improve ergonomics and lightweight the design of the seat shell on one of its flagship off-road vehicle platforms, while also realizing cost savings. Seat shells need to absorb shock and effects of a rough ride while providing a comfortable riding experience. The bar was set to deliver a high-quality experience for the customer without significantly raising cost, as moving the price point of the vehicle could harm sales.

THE SOLUTIONS

Formerra coordinated and project-managed over 150 hours of engineering support, working closely with the client's team to create a more durable and cost-effective seat shell design.

Rethinking a critical component on a best-selling platform helps a high-profile powersports brand realize weight and cost savings



Success Story 3 (continued)

THE RESULTS

The new seat shell demonstrated a 30% increase in strength from the original design. In addition, the team was able to achieve part consolidation, resulting in cost savings

THE KEY TAKEAWAYS

While this project focused on a redesign of a seat shell for a high-profile brand, the fundamentals of balancing seemingly uncomplimentary results can be applied to any seat design for any model of off-road vehicle. For instance, increasing shock absorption while improving ergonomics can be difficult when redesigning part geometry; you may achieve one result at the expense of another. Innovative component redesigns like this one can not only benefit the OEM (part consolidation and cost savings), but also the end customer (better ergonomics and a stronger overall platform).



Formerra is your go-to partner for driving innovation in the Powersports industry.

Whether you're looking to enhance your design process, choose the right materials, streamline your supply chain, or ensure compliance with regulatory standards, our team is here to support you every step of the way. Let's accelerate your path to success together.

See what sets us apart.

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