

Case Study #001 - WHEEL CHOCK



WHEEL CHOCKS



PROJECT OVERVIEW

Race Ramps came to us looking for a higher level of service and a quality product. The opportunity arose after their existing supplier was no longer interested in producing their short-run injection molded recycled wheel chocks. Race Ramps also was not completely satisfied with the part, because it was too hard and a high durometer allowed it to slip during use. The molder attempted to mix in crumb rubber at the injection molding machine to improve grip and add elastomeric properties, but they were unable to create a quality part with good surface finish. Entech's TPE Value Enhancement Program was a great solution for modifying part grip, saving costs, and improving overall performance, while providing turn-key short-run production.

TPEvalue SOLUTION:

50% TPE 50% Micronized Rubber Powder (MRP)

TPE Value Enhancement Program Snapshot:

- Short-Run Production: 1,000 parts per month
- Reduced Cost per Part: 10%
- Improved Part Properties
- Quick 2-day turnaround for tooling modifications



7-step process for adding elastomeric properties to thermoplastic injection molded, extruded or vacuum formed parts <u>without expensive polymers</u>.



VIABILITY ASSESSMENT



Neal Frey, Entech's Vice President of Market Development, arranged for an introductory call with **Richard Heinz of Race Ramps** and **David Stackhouse**, Entech's Product and Processing Engineer. David quickly understood that Richard wanted to make improvements to his part but their existing supplier wasn't giving them much attention. After this talk, Richard was intrigued enough to make the trip to Middlebury, IN to see the operations.



PRODUCT DESIGN



Lavon Detweiler, Entech CEO, and David Stackhouse began looking for ways to improve part design. Two things stood out:

By compounding Entech micro-sized rubber powder with recycled TPEs, the Entech team knew it was possible to add elastomeric properties to the thermoplastic thereby improving grip of the chock, while also improving impact resistance and strength.

Entech's micronized rubber powder (MRP) would provide a smoother surface texture over cruder alternatives. Although only a wheel chock, it was being used as a promotional tool so appearance improvement would be a nice bonus.





BEFORE

TOOLING



Having complete control over tooling modifications meant Entech could easily replace the former "Made in Canada" insert with "Made in USA." Entech turned this around in two days.

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AFTER



When it comes to compounding, Entech's go-toguy is **Haikun Xu**, a PhD from the University of Massachusetts Lowell. His goal is to maximize product performance and processability. For Race Ramps, he followed his usual 3-step approach:

COMPOUNDING

Clearly Define Part Requirements

In this case, Haikun was asked to improve resilience, crack resistance, low temperature impact resistance and surface tackiness. There was also a desire to use recycled materials as much as possible.

Material Selection

Haikun's recommendation was to change the base resin from recycled PP to TPE in order to improve cold temperature impact resistance. No major tooling modifications were required.

Compound Formulation

Entech's in-house compounding line, molding line, and testing laboratory greatly accelerates the process of identifying the optimal recipe. In this particular application, the final recipe resulted in 50% TPE to 50% micronized rubber powder (MRP).

PROTOTYPE, TESTING & PRODUCTION



Finally, Neal Frey put the icing on the cake for Race Ramps by piecing together a production schedule and price point that not only met their requirements, but exceeded expectations.



I wish I would have found these guys sooner! They're the real deal. I was really impressed with their cradle to grave operation; molds, materials, production. I love that they make their own tooling. I have another project with them now and right out of the gate they had several really great ideas for how to improve things.

- Richard Heinz Race Ramps

FREAL DEAL

The TPE Value Enhancement Program by Entech is a 7-step process that adds elastomeric properties to thermoplastic injection molded, extruded or vacuum formed parts at a reduced price point when compared to virgin TPEs.

Ideal applications would be for those seeking improvements in weatherability, flexibility, resilience, impact resistance, crack resistance, or surface grip.

Entech specializes in the compounding of thermoplastic elastomers, conventional polyolefins, and the use of micronized rubber powder (MRP) as a filler in thermoplastics. This unique offer is supported by turn-key product design, tooling, prototyping, testing, and production services.

GET STARTED NOW WITH A NO OBLIGATION VIABILITY ASSESSMENT.



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