



PepsiCo

Case Study – PepsiCo Beverages North America

2-Liter Bottle Redesign

Customer Profile

PepsiCo is one of the world's leading food and beverage producers today, with Mauro Porcini at its helm as Global Chief Design Officer. Charged not only with overseeing design-led innovation across all brands but also encouraging sustainability through technological advancements, his leadership has been critical in driving design thinking at the company. Porcini has supported the collaboration between design and R&D to invest in new technology to reimagine structural packaging, including the latest 2-liter bottle redesign. The new bottles have been rolled out in the Chicagoland, Wisconsin and the Twin Cities markets across more than two dozen beverage brands including MTN Dew, Pepsi and extended flavor portfolio.

Challenge

The design intent for PepsiCo's new 2-liter bottles is to create a more functional, easy to grip package that is unique to PepsiCo brands. The PepsiCo design team leveraged a human-centered design approach to observe how consumers use and pour 2-liter bottles. Thousands of sketches and hundreds of 3D prototypes were created to study the physical look and feel of the new design. A new challenge arrived later in the design process where it was difficult to get accurate feedback from stakeholders and potential customers using only low-fidelity 3D prints. What if there were a way to create a more realistic 3D prototype with accurate color and transparency?



Full color 3D printed prototype next to a low-fidelity 3D printed prototype



Solution

PepsiCo now uses the Stratasys J55™ Prime 3D printer to produce CMF (color material finish) design prototypes. By creating fast, full color iterations of the new bottle designs, the design team is able to take their concept from the early research phases to physical testing through to final production with confidence. This speeds up the design process and allows for more accurate feedback from stakeholders. All stakeholders are able to communicate via one full color prototype that they can actually see, touch, and test, as if it is the final product without having to imagine color and transparency. The PepsiCo team is now able to produce a full color prototype in one print, complete with a high-definition label, within a few hours. These full color printed prototypes will provide PepsiCo with a shorter design process, a faster time to market and an overall reduction in design costs. Stratasys PolyJet technology also enables the engineering team to produce short-run blow mold tooling for production in a substantially shorter timeframe than would be possible with traditional methods, which is crucial in getting new designs to market quickly.

Impact

According to Max Rodriguez, R&D Sr. Manager - Global Packaging & Engineering at PepsiCo, “The ability to 3D print a tool or an aesthetic prototype in 24 hours without the need for external vendors, is significant from a time-savings perspective. In addition, our data indicates that the performance comparison between a 3D printed mold and conventional metal tooling is comparable, both in top load, side load, pressure burst, material distribution, basically on all the major performance parameters that we track.” Another area that the Stratasys J55 printer has been a major improvement is in the surface quality. The J55 has a very high printing resolution that enabled PepsiCo to bypass any post-processing steps and simply take the tooling prototype out of the printer and go straight to bottle sample production, after the standard process of support removal. Rodriguez continued, “From a cost savings perspective, typical tooling costs range between \$5-10K, depending on the complexity of the mold. By utilizing the Stratasys J55, we reduced that to less than \$1000.” In the food and beverage industry, time is money. Any process improvement that can save time and increase efficiency is a major benefit. PepsiCo has realized such an improvement with Stratasys 3D printing technology.



Filming for the America By Design TV series on the new PepsiCo design prototype

Time Savings



80%

1 wk vs. 5 wks

Cost Savings



90%

\$1000 vs. \$10,000