

Challenge Accepted.



**LIGHT DIFFUSION,
SIMPLIFIED**

 **AVIENT™** » CASE STUDY: SMARTBATCH SOLUTIONS





AESTHETIC DESIGN AND MANUFACTURING EFFICIENCIES ACHIEVED WITH A SINGLE SOLUTION

THE CHALLENGE

A leading lighting products manufacturer was developing its latest offering for the LED luminaires market and looking for ways to solve aesthetic and performance issues while streamlining a complicated manufacturing process. The objective was to design a visually pleasing light source, while improving the flexibility and efficiency of its own production process.

Achieving the desired aesthetics and quality of light presented unexpected challenges and setbacks. Despite using an acrylic sheet with built-in light diffusion technology, the light source was plagued by visual “hot spots.” The light quality was further diminished when a white lens, intended to produce a bright white light, instead appeared washed-out and gray. This created major problems for the organization—as getting the quality of light just right was critical not only to avoiding more delays of the product launch, as well as maintaining its brand image as an innovative, high quality lighting designer.

To further complicate matters, the company was under a directive to bring lens production back to the United States to improve manufacturing efficiency. Sourcing materials from overseas made the company vulnerable to quality inconsistencies and long lead times. Also, the acrylic sheets required an additional process to cut them to size before thermoforming, which led to excessive waste and disposal costs.

THE SOLUTION

The company approached Avient with its challenge. After developing a deep understanding of the customer’s needs, Avient’s team quickly went to work formulating a custom OnCap™ Light Diffusion additive technology, then added a custom OnColor™ color to make a single Smartbatch™ masterbatch solution. This optimized combination of additive and color technology eliminated the “hot spots,” and achieved the sought-after bright white light, and streamlined the entire manufacturing process by enabling in-house production. Instead of purchasing pre-fabricated acrylic sheet that contained a costly diffusion additive, the Smartbatch solution enabled the customer to reduce its material costs by 50%. The OEM was able to purchase virgin resin and add only the necessary amounts of color and diffusion additives required to achieve peak performance. This saved the customer over \$25,000 in annual material costs in addition to resolving its toughest design challenges.

While the Smartbatch solution was developed specifically for the LED luminaire project, it was so effective that the customer has plans to incorporate this technology into the next wave of products currently under development.

Smartbatch solutions incorporate color, light diffusion technology and flame retardant into a single masterbatch. Applications include:

- Lighting
- Appliances
- Consumer Electronics
- Transportation

To learn more about Smartbatch solutions, contact Avient at +1.844.4AVIENT (1.844.428.4368).