PolyOne Solution for Polycarbonate Sheet Lets the Sun Shine In

High-performance OnCap™ UV Absorber additive masterbatch solution helps sheet manufacturers improve process efficiency and product quality while saving US$120,000 annually.

**Situation**

Polycarbonate (PC) “sun sheet”, used for clear or tinted roofing panels in outdoor venues such as stadiums and arenas, must have superior weathering resistance and high durability. Additives are commonly used to protect the polymer from damage caused by ultraviolet (UV) radiation from the sun and other light sources such as fluorescent lighting. However, low-molecular weight components in some formulations can build up on the sheet die during extrusion. One PC sun sheet manufacturer’s extrusion process was experiencing frequent downtime because excessive die build-up required shut-downs for cleaning every three to four days.

**The PolyOne Difference**

The sheet manufacturer came to PolyOne for help in solving this costly problem. PolyOne’s technical team listened to the customer’s needs and developed a specialized UV stabilizer additive masterbatch based on its portfolio of OnCap™ UV stabilizer masterbatches. The solution featured high heat stability and low volatility that would reduce die build-up and provide superior weatherability. In addition, PolyOne’s expert formulators determined that the customer could use the PolyOne masterbatch at lower percentage, while still meeting weathering requirements.

PolyOne’s technical service personnel attended extrusion trials at the customer’s facility and observed that using the PolyOne additive instead of the existing additive resulted in lower die build-up and a more stable thickness of the coextruded layer. In addition, PolyOne completed 10,000 hours of accelerated weathering testing and found that PC sheet made with the PolyOne UV stabilizer exhibited better long-term appearance and impact property retention compared to sheet made with and fewer surface cracks.
Delivering a Value-Added Solution

PolyOne’s solution saved the customer US$120,000 per year in lower masterbatch loading, as well as additional savings from reduced maintenance and downtime. After using the PolyOne formulation for a period of time, the customer discovered that the sheet die could go a week or more between cleanings, instead of only three to four days. This dramatic improvement made the manufacturing process more efficient.

In addition, PolyOne offered local supply, reducing the customer’s inventory and lead-time requirements as well as freight costs. The customer benefited from PolyOne’s commitment to providing high-quality, local product supply and technical support. “This project demonstrates our commitment to helping our customers in China grow by differentiating their products, enhancing their operations and providing them with significant competitive advantage,” said Mark Crist, vice president, PolyOne Asia.

PolyOne offers specialized solutions, such as OnCap™ UV stabilizers, which are targeted at helping customers meet performance and environmental goals, increase profitability, and maximize value in every way possible.

Customer Testimonial:

Delivering a Value-Added Solution

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