

MANUFACTURER BOOSTS DISINFECTANT RESISTANCE FOR MEDICAL DEVICE HOUSINGS



PolyOne

CASE STUDY: TRILLIANT™ HC HIGH PERFORMANCE BLENDS



HIGH PERFORMANCE MEDICAL FORMULATIONS

THE CHALLENGE

Hospital acquired infections are on the rise, and healthcare facilities are doing their best to combat this trend by disinfecting equipment surfaces more frequently and with harsher cleaners. The problem is that most polymer housings are not able to resist the chemicals involved in this treatment without cracking.

Here's a case in point: A leading manufacturer of medical devices in North America had established a great brand with excellent quality, but wanted to improve the resistance of its PC/ABS equipment housings to this new disinfection protocol. It wanted to avoid the brittleness, cracking and resulting product recalls and added costs that happen when the material is put in contact with harsh disinfectants. The manufacturer was struggling to find a replacement material with excellent chemical resistance and a high flame retardant rating. Although PVC is one option, this manufacturer needed a colorable, drop-in replacement for PC/ABS.

THE SOLUTION

The manufacturer approached PolyOne with its challenge. After fully understanding all of

the requirements, PolyOne's technology team began to formulate an easy-to-mold, durable and aesthetically pleasing specialty polymer that provided processing flexibility and wouldn't require retooling. Since chemical resistance was one of the most important requirements for this solution, stress tests involving disinfectants were used to filter initial options. From there, the PolyOne team identified material options that offered high flame retardancy and finally, requirements for processing flexibility and colorability were applied.

Trilliant HC High Performance Formulations were developed for the application needs. During stress testing, materials were exposed for seven days at either 1.0% strain or 1.5% strain. The results showed the PolyOne material outperformed typical FR PC/ABS and had an added bonus: a UL yellow card VO flammability rating for all colors and some thicknesses.* PolyOne also used its custom color matching capabilities to provide pre-colored material that simplified molding, while the material's wide processing window helped accommodate a variety of molding environments.

* VO @ 1.5 and 3.0mm

TENSILE STRENGTH RETENTION AFTER 7 DAYS EXPOSURE

- FR PC / ABS (1.0% Strain)
- FR PC / ABS (1.5% Strain)
- Trilliant HC (1.0% strain)
- Trilliant HC (1.5% strain)

Both materials were submerged in the test liquid for 7 days. Testing was conducted by an independent third party.

