
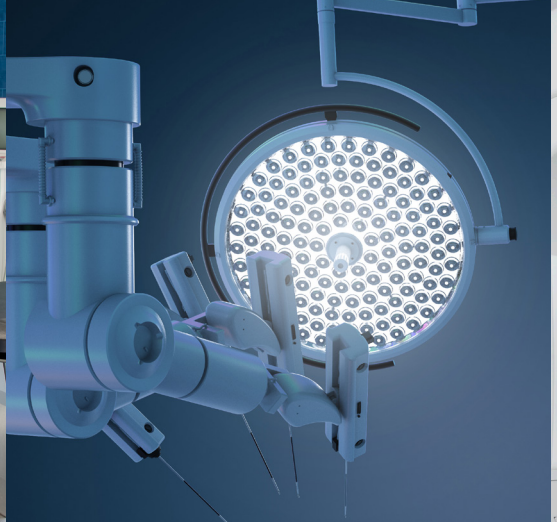


PROGRAM BULLETIN

Are Your Devices Standing Up to Disinfection?

When designing a medical device, selecting a material that will last and perform well under harsh conditions has never been tougher. Currently, concerns over healthcare-associated infections (HAIs) have led many medical facilities to respond by disinfecting equipment surfaces more frequently using harsher disinfectants. The problem is that most polymer device housings are not able to resist repeated exposure to the chemicals involved in disinfection without cracking, crazing, or otherwise losing structural integrity.

AVIENT SOLUTIONS PROVIDE DISINFECTANT DURABILITY

Trilliant™ HC high performance formulations were developed for specific healthcare enclosure needs, including:

- Chemical resistance to common disinfectants
- UL 94 ratings of 5VA at 3.0, V-0 at 1.5 mm & V-1 at 0.75 mm
- Retained color aesthetics after chemical exposure
- Ability to utilize existing PC/PET & COPE tooling

Tested using an adaptation from ASTM D543 for environmental stress cracking resistance (ESCR), 15 bars of each material were placed into jigs at 1% and 2% strain. Three bars were treated with five different commercially available hospital disinfectants once every 24 hours for three days. This procedure was completed by placing one 1/2 inch section of rayon gauze at the apex of each bar, and soaking the gauze with the disinfectant to saturate the material. The bars were then evaluated each day for visual changes. After three days of exposure to the hospital disinfectants, a 20x magnified image was taken of each set of bars to demonstrate the effect of the chemical. Visual inspection of the bars was used to classify the bars based on the amount of crazing or cracking which occurred. Fully fractured bars were given the lowest rating.

Tensile Strength Property Retention After 72-hour Continuous Exposure

	Virex® Tb	Vesphene™ IIse	CaviCide™
Trilliant™ HC 8910	+++	+++	+++
Trilliant™ HC 8920 (FR)	–	+++	+++
FR PC/PET	–	+	++
FR COPE (copolyester)	+	++	+++

+++ Best (>90% retention),
++ Better (50-90% retention),
+ Good (<50% retention),
– Crack Failure

AVIENT™

Versaflex™ HC thermoplastic elastomers can enhance ergonomics in medical devices by adding a soft touch and improved grip. Designed for two-shot injection molding and formulated for the appropriate substrate, these medical-grade TPEs are compatible with rigid PVC, copolyesters, all PC alloys, ABS, TPUs and PEI substrates.

Versaflex HC grades provide:

- Resistance to common disinfectants
- Excellent bonding to Trilliant HC materials and other engineering thermoplastics
- Customization to achieve desired haptics and color branding

A BINDING CONNECTION

With Avient, you can redesign your medical enclosure substrate and improve the ergonomics, comfort and ease of use with overmolded TPEs. Specifically formulated to bond tightly to the semi-crystalline Trilliant HC substrate, Versaflex HC OM 8940 demonstrated excellent peel strength (also known as bond strength).

Average Peel Strength (PLI)	Versaflex™ HC OM 8940
Trilliant™ HC 8910	16.3
Trilliant™ HC 8920 FR	17.0

Contact Avient today to learn how our innovative healthcare solutions can prevent chemical related stress cracking, premature field failures, and component discoloration while mitigating the potential risk of complaints or claims.

www.avient.com