

Application Case Study



LIQUID PROCESS FILTERS GRAVER TECHNOLOGIES 1-888-353-0303

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ACS-005

Stratum Filters Deliver a Clear Solution for Optical Coatings

Application:	Optical Coatings
Current Product Used:	GE Hytrex and RO. Save 1 and 5 micron
Graver Product:	Graver Technologies Stratum Series (STC 1, 3, 5)

Discussion:

The customer manufactures specialty faceplates used in military applications for fighter pilot helmets, motorcycle helmets, and gas masks. Clarity in both the molded part and the Silicone hard coat are critical to ensure no distortion in the line of vision.

The silicone hard coat solution, with a 10 cps viscosity had a tendency to develop gelatinous contaminant which can be difficult to capture and retain. In addition hard particulate was also present. The customer had been using the GE Hytrex and RO.Save products in 1 and 5 micron, depending on batch requirements, on a continuous recirculation loop from the storage tank. Despite the labeled micron, contaminant larger than 1 and 5 micron was passing through these filters, causing costly faceplate defects and high scrap rates. This was strong evidence that the GE filters were much lower than 90% efficiency at the labeled rating, and/or were unloading captured contaminant due to inadequate thermal bonding.

Graver's distributor recommended the new Graver Stratum Series filters to replace the GE products; armed with data on how Stratum's advanced melt blown structure can outperform competitive filters in retention efficiency, gel capture, consistency and on-stream life. Trials were run with 3 different grades of Stratum C filters – 1, 3, and 5 micron.

Results

- The customer was able to use Stratum C 3 micron filters in place of GE 1 micron due to the higher efficiency level of the Stratum filter.
- The STC 3 micron filters resulted in achievement of the ultimate process goal of zero defects!
- On-stream life improved from 2 weeks to over a month, or a 50% reduction in annual filter consumption.
- Lower pressure drops were recorded for Stratum compared to GE, despite the higher efficiency of the Stratum.
- The customer also reported an additional benefit of the proprietary hard molded "Cactus Core" used in all Stratum filters. They felt that the seating in the housing was more stable and reliable, easing concerns about over tightening the GE filters and causing bypass.
- The customer plans to continue to evaluate STC 5 micron filters, which they feel may also deliver the desired contaminant control, but extend filter life/drop consumption even further.