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Application Brief

3M™ High Flow Series 0.5µm Cartridges Increased the Service Life of Spring Water Filters

The problem

The popularity of bottled water and clear beverages continues to rise in many countries. Consumers are drawn to the consistent taste, convenience, and health attributes that bottled beverages can provide.

Natural springs are one of many sources of water for bottled beverages.

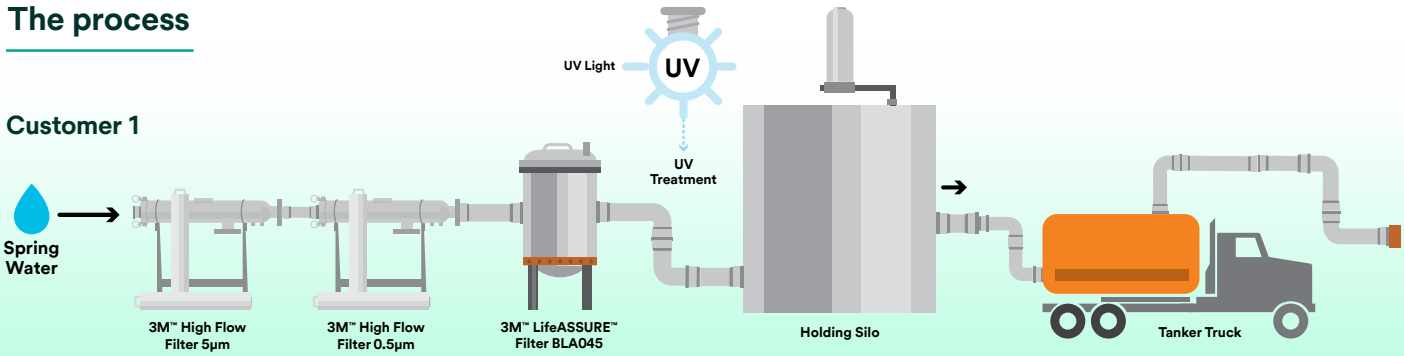
Waters pumped from spring bore heads are commonly filtered and treated before temporary storage in silos. Tanker trucks deliver these spring waters to bottling locations for further treatment. Filtration systems at the spring sites are the first line of defense in ensuring contaminant free water at the bottling locations.

Spring site water quality can vary depending on the climate, location, seasonality, and age of the collection system. Common spring water concerns include silicates, bacteria, heavy and common metallic contaminants. Micron and submicron particle removal efficiency filters are used to reduce the transfer of contaminants into the silo, tanker trucks, and downstream bottling facilities.

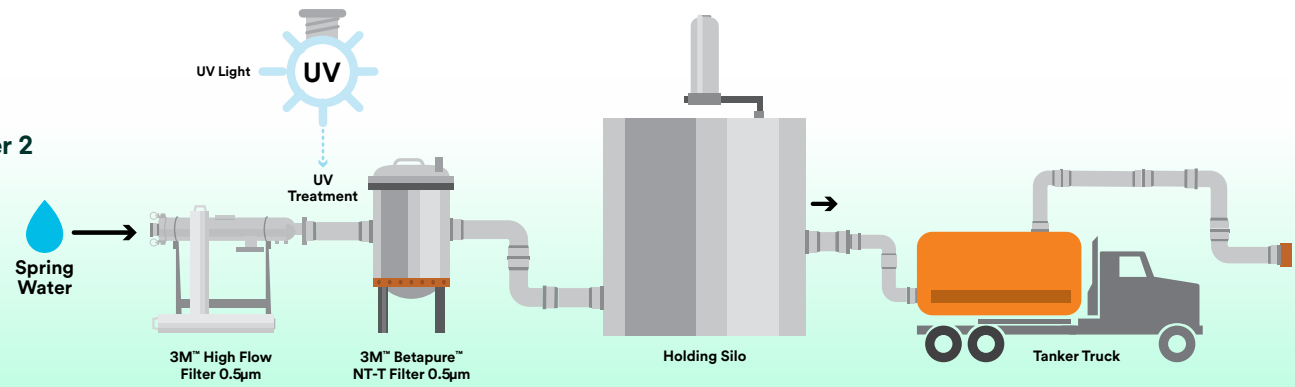
Two bottled water plants in the eastern United States previously partnered with Solventum to solve challenges in their spring, bottling, and bottle washing processes. These two customers partnered with us again to increase the service life of their sub-micron particle filters at the spring site locations.

The process

Customer 1



Customer 2



The solution

Both customers were using 3M™ High Flow™ Series Filters at their spring site locations and were asked to evaluate the 3M High Flow Series 0.5µm line extension. The Solventum Application Engineering team provided pre-production filters at no cost to the customers, monitored the filters in service, and collected spent filters and water for analysis.

The 99.9% (Beta 1000) efficient 3M High Flow Series Filter 0.5µm incorporates an accordion-style diamond-shape pleat structure, which offers a substantial increase in surface area. The 3M High Flow Series Filter 0.5µm is for water bottlers who want the labor saving and ergonomic benefits of a high flow, large format filter coupled with a lower total cost of filtration for their sub-micron applications by extending the life of existing, more expensive downstream filters.

The result

The 3M High Flow 0.5µm Filters carried more of the contaminants burden than the existing 3M High Flow filters, which extended the service life of the downstream filters. The cost savings from increasing the time between change-outs of the expensive downstream filters far outweighed the increased cost related to the shorter service life of the High Flow 0.5µm filter.

Customer 1 saw a single 3M High Flow Filter 0.5µm extend the life of the (30) 3M™ LifeASSURE™ BLA045 downstream membrane filters. The 3M High Flow filters lasted 45 days in service and the 3M LifeASSURE filters did not achieve terminal pressure during the 4-month trial. The (30) LifeASSURE BLA045 filters cost 20 times more than the 3M High Flow filter resulting in a substantial cost of filtration savings.

Customer 2 saw a 13% reduction in life moving from 3M High Flow filter 2.0µm to the 3M High Flow Series Filter 0.5µm yet achieved a 1.5X increase in 3M™ Betapure™ NT-T Filter service life. The 3M NT-T Filter costs 7 times more than the 3M High Flow filter resulting in a substantial cost of filtration savings.

Application Engineering

The cornerstone of Solventum's philosophy is service to customers, not only in product quality and prompt delivery, but also in validation, application support, and the sharing of scientific information.

By using Solventum products, customers have access to Solventum Application Engineering support, a global team of market-focused scientists and engineers who excel in supporting collaborative efforts between customers and Solventum.

Our Application Engineers can work with you from start to finish to suggest the most effective and economical filters to achieve the clearest results.

For more information, contact your Solventum sales representative.

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