

3M™ High Flow Series 0.5µm Cartridges strip barrel char from bourbon and whiskey



The problem

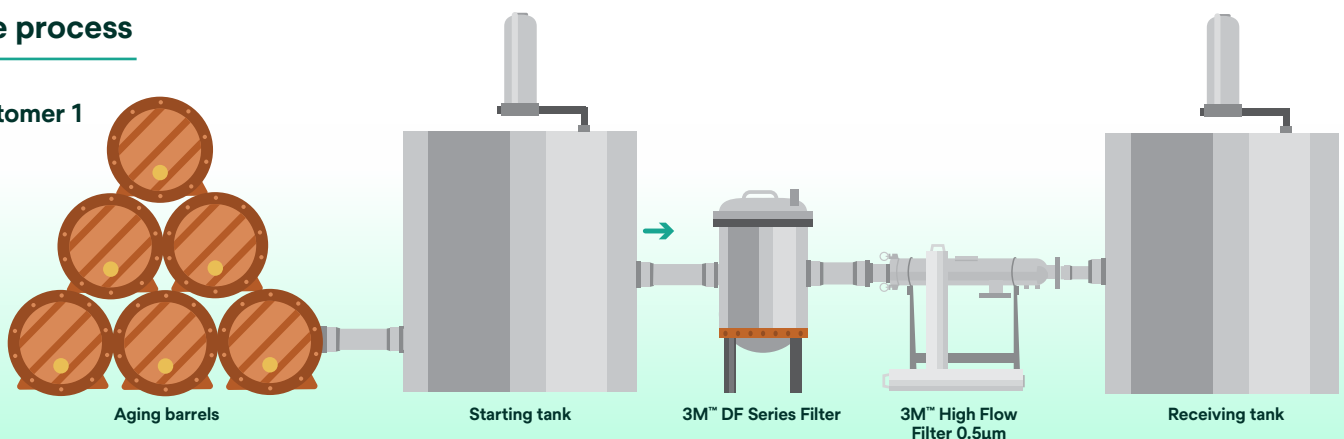
From the purest single malt whiskey to a perfectly cured brandy, many spirits are aged for decades, and some can be worth in excess of thousands of pounds per bottle. As the value of a spirit is often much more than any other beverage per litre, reducing waste and loss can vastly improve economics within the distilling process.

Clear distilled spirits mature in charred barrels to impart color and distinct character, while the carbon char improves the harsher spirit elements. Barrel char and other contaminants that remain in the spirits can detract from the appearance, taste, and perceived value of the finished product. Filter presses, common in the industry, cannot always process an entire batch in a single run. Each filter press pad change increases time, increases fluid loss, and increases cost.

One distillery partnered with Solventum to improve the process of removing barrel char. Existing filtration of the 250+ gallon bourbon batches required four shutdowns for filter press pad changes. A single batch operation cost of filtration (5 PAD change-outs) included (14) man hours and (150) filter pads with associated fluid loss per shut down.

The process

Customer 1



The solution

The bourbon producer evaluated the 3M™ High Flow Series Filter 0.5µm product line extension. The Solventum Application Engineering team provided pre-production filters and trial filter vessels at no cost to the customer, monitored the filters in service, and reported findings to the customer. The 99.9% (Beta 1000) efficient 3M High Flow Series Filter 0.5µm incorporates a diamond shaped pleat structure, which offers a substantial increase in surface area. 3M High Flow polypropylene media retains minimal fluid as compared to filter press pads cellulosic/filter aid sheets. The 3M High Flow Series Filter 0.5µm is for distilleries and bottlers to reduce barrel char and other contaminants, while eliminating burdensome and ergonomically unfavorable filter presses. The labor saving and ergonomic benefits of a high flow, large format filter coupled with an increase in distilled product output and decrease in overall waste was a win for this customer.

The result

A bourbon distillery filtered an entire 250-gallon batch in a single pass through the 10" 3M™ High Flow Series Filter 0.5µm, as compared to 5 filter pad changes using the competitive filter press. The High Flow Series Filter reduced process time by 92%, from 14 hours to 1 hour, as mid-batch shutdowns were eliminated. The High Flow Series Filter maintained the 20 gpm flow rate and differential pressure did not rise above 1 psid throughout the trial. Bourbon yield increased as there was minimal retained fluid within the polypropylene filter pleats as compared to the fluid retained in the 150 filter press pads.

The customer saw a cost of filtration improvement using the 3M High Flow Series System:

- A single 10" High Flow Series filter was less expensive than (150) competitive filter pads
- Labor savings improvement as batch process time dropped 92% from 14 hours to 1 hour
- Reduced fluid loss as High Flow media minimal fluid as compared to (150) filter pads

3M High Flow Series filters can be reused in certain food and beverage applications. Additional savings can be had by cleaning/sanitizing the High Flow Series filters between uses. Please see Solventum Technical Briefs 70201602409, 70020220268, and 70020253400 for more information on storage, sanitization, and regeneration of Solventum filters. Solventum works directly with individual distilleries and bottlers to define ideal systems for barrel char removal, clarification, and final filtration. With cost-effective, efficient, and reliable solutions, there's a reason customers choose Solventum filtration and separation systems.

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.

Intended Use: 3M High Flow Series Filter Cartridges are intended for use in the industrial filtration applications of aqueous fluids in accordance with the applicable product instructions and specifications. 3M High Flow Series Filter Cartridges products are also intended for use with non-aqueous fluids where materials of construction are compatible. Certain limited 3M High Flow Series Filter Cartridges products are also intended for use in Food and Beverage (F&B) applications. For details related to the specific use conditions or limitations for food contact applications please contact your Solventum representative for more information. Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Solventum product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the Solventum product in user's application.

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by Solventum are based upon records, tests, or experience that Solventum believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any Solventum or third party intellectual property rights is granted or implied with this information.

Product Selection and Use: Many factors beyond Solventum's control and uniquely within user's knowledge and control can affect the use and performance of a Solventum product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a Solventum product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Limited Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is expressly identified on the applicable Solventum product literature or packaging (in which case such express warranty governs), Solventum warrants that each Solventum product meets the applicable Solventum product specification at the time Solventum ships the product. SOLVENTUM MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a Solventum product does not conform to this warranty, then the sole and exclusive remedy is, at Solventum's option, replacement of the Solventum product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, Solventum will not be liable for any loss or damage arising from or related to the Solventum product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



Solventum Purification and Filtration

Charnwood Campus
10 Bakewell Road, Loughborough,
Leicestershire, LE11 5RB
United Kingdom
Web 3M.co.uk/highflow

Solventum Purification and Filtration

2 Cumberland place
Fenian Street,
Dublin 2, D02 H0V5
Ireland
Web 3M.co.uk/highflow

Solventum, formerly 3M Health Care

Solventum and the S logo are trademarks of Solventum or affiliates. 3M is a trademark of 3M.
©Solventum 2024. All rights reserved. 70-2016-0413-2