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Case Study

Cannabis Processor Realizes Significant Cost Savings with Longer Lasting FPC Filter Bags

A large cannabis processor located in California contacted Filter Products Company to redesign a custom strainer bag used in the centrifugation stage of an ethanol extraction process. The Filter Products engineering team worked with the process engineer at the company to design a zipper-closure centrifuge liner that provides a manifold increase in strainer bag life. The result for the customer is:

- A significant reduction of operating costs through longer lasting process consumables.
- An increase in production uptime.
- The elimination of landfill waste.
- Faster, more consistent delivery with lower shipping costs and minimum purchase quantities from a US manufacturer.

Customer Issue

Strainer bags are used to contain biomass during the centrifugation of cannabis in an ethanol extraction process. In this case the customer was using a large industrial centrifuge to separate the leaf from the extracted cannabinoid oils.

This customer was receiving a foreign-source centrifuge liner supplied by the centrifuge manufacturer. The issues they encountered and the reason that they contacted Filter Products Company included:

- **Supply chain issues** including poor communication, high freight costs, large order quantities, and unpredictable lead-times.
- **Poor mechanical durability** of the strainer filter bag. The liner would fail during the centrifugation process because of poor fitment, or during removal from the centrifuge because of insufficient mechanical design and construction. This bag typically contained 150-pounds of wet cannabis. When the bag broke, the centrifuge had to be cleaned, halting production.
- **Short life span** for the strainer bags. The manufacturer supplied liners could be used for five extraction cycles, on average.

All these issues impacted the customer's manufacturing productivity; in some cases, they caused significant production downtime. However, the biggest desire for the customer when they contacted us was to increase the useful life of the strainer bag. Reducing their operating costs and waste in the highly competitive cannabis processing business was critical to their continued profitable operation.

Filter Products Company Solution

After being contacted by the customer, the FPC engineering team reviewed the bag that was sent by the customer to understand how the product life could be improved. It was clear from this review there were fitment issues and weak areas in the design that could be improved. The engineering team reviewed the filtration fabric being used, the seam design, and the lifting handles used to transport the bag in and out of the centrifuge. The team then proposed redesign options to the customer.

Industrial Centrifuge Strainer Bag for Biomass

The output of this conversation was a design direction that addressed all of the issues identified. The team then built prototypes and sent them to the customer to test. The customer and the Filter Products team went through a couple of design iterations.

The final design features multi-layer fabric side panels for enhanced durability without changing the retention performance, as well as a more durable filtration fabric on the bottom panel, a combination of reinforced seams and singed fabric edges to prevent seam slippage, revised webbing placement on the circumference of the bag, and stronger lifting loops.

48” Diameter x 20” Tall

Customer Result

Initial test results from the customer indicated that the new design lasted 25 or more extraction cycles before failure. This was at least a fivefold increase and a huge cost savings for the customer. This was enough for the customer to make the switch to Filter Products Company. However, the customer also found that production downtime has been eliminated because the reinforced lifting handles do not break. Finally, manufacturing lead-time, shipping costs, and order quantities were dramatically reduced for the customer by switching to Filter Products Company, a US domestic manufacturer.

After delivering a few dozen centrifuge liners to the customer, the team at Filter Products realized that the customer was not purchasing nearly as many as were forecast. When Filter Products followed up with the customer to see if they were having any production problems, the answer was a resounding “no!” The centrifuge liners were now lasting up to 180 cycles before they needed to be replaced, 36 times longer than the original liner. The cost mitigation recognized by sourcing this critical process strainer from Filter Products Company is greater than $350,000.

Services Used

FPC is a premier provider of custom strainer bags offering design, prototyping, testing and manufacturing capabilities.