



## Filter Products C O M P A N Y

### Case Study

# FPC Enhances Post-Extraction Filtration System



A BHO processor's brand new filtration system was experiencing significant down-time, and sometimes failing and letting unfiltered feed stock through. Filter Products Company took on the challenge of troubleshooting and optimizing their process.

### Customer Issue

Recently, Filter Products Company was approached by a BHO processor that had invested handsomely in a falling film distillation apparatus. Unfortunately, due to impurities in the feed stock, they were experiencing significant down-time and sub-optimal results with their new equipment.

### Filter Products Company Solution

Filter Products Company assessed their existing equipment and determined that most of the “turn-key system” that they had purchased for filtration was, in-fact, undersized. Furthermore, the components used were not adequate for processing a plant derived, human-consumable product in a sanitary way.

The primary filtration vessel in the original system was a large stainless steel bag filter housing that used 200-micron felt strainer bags. This bag filter housing fed a single 30” cartridge housing with a 50-micron string wound filter. Finally, this cartridge housing led to a bulk tank storing extract for use as feed stock for the falling film distillation column.

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We identified several problems with the initial filtration setup:

- The bag housing was not properly equipped with a drain, which led to significant frustration and product waste because of the dead-space in the filter at the end of each run.
- The bag housing had industrial NPT (National Pipe Thread) fittings that were adapted to Tri-Clamp fittings. This made connection easy, but overlooked the sanitary requirements for extract filtration.
- The single cartridge housing provided adequate flow initially, but the effluent was not sufficiently clean.
- The cartridge blinded off quickly, which required frequent change-outs. If the peak pressure was not caught, the string-wound filters failed and let unfiltered extract pass through into the falling film feed stock tank. When this happened, the entire batch required re-filtration.

For the bag housing, Filter Products Company provided a sanitary grade stainless steel housing and basket with Tri-Clamp fittings. We also supplied a sample array of alcohol-tolerant polypropylene filter bags to 'tune-in' the initial filtration stage. Elimination of the practically uncleanable NPT fittings provided sealing surfaces that could be sterilized, in addition to removing a lightning-rod feature for facility inspectors.

We replaced the single cartridge filter housing in the secondary filtration stage with a 12" diameter domed sanitary lenticular filter housing. This housing was configured with a single lenticular filtration pack with over 18 square feet of diatomaceous-earth-impregnated cellulose.

The original single cartridge housing was re-purposed as a polishing cartridge with an absolute-rated, pleated polypropylene element to polish the extract before it entered the distillation column's bulk tank.

## **Customer Result**

After Filter Products Company re-designed the system and integrated new filtration elements, the customer was able to process entire batches of up to 480 gallons without changing a single filter. When filter change-out was necessary, the process was much easier because all of the housings had properly integrated drains which allowed for unfiltered extraction liquid to be drained, collected, and put back into the pre-filtration feed stock. This eliminated costly waste and improved raw material utilization.

Finally, the redesign dramatically improved up-time and throughput as the refined filtration stages ensured clean supply to the falling film equipment.

## Service Used

Contact us to learn about FPC's consulting services for filtration and process improvement:



[Process Engineering  
Consulting Services](#)