



## ASK FILTERMAN™

### Ethanol Processing Facility Utilizes Ronningen-Petter Mechanically Cleaned Filters to Reclaim CIP Fluid.

A large, Midwestern ethanol plant, having recently expanded, was faced with increasing operating costs due to the rising price of caustic (CIP) fluid.

The facility utilizes a series of tanks filled with corn mash, enzymes and water. This mixture is heated and allowed to ferment – with each tank being in a different stage of fermentation. When the process is complete, each tank emptied and the contents sent to distillation.

To keep production levels high, the emptied tanks must be readied for the next batch as soon as possible. The longer the tank is empty for cleaning, the less revenue is generated.

Once drained, the tank is flushed with water. As the tank is spray-rinsed, a drain valve is opened to flush out the solids. The valve is then closed and the wash water is recycled to completely flush the tank's interior.

The final step is to wash the tank with a caustic rinse containing sodium hydroxide. This phase of the process is absolutely critical to fermentation. If the caustic

doesn't effectively clean the tank, it can easily become a breeding ground for bacteria. Bacteria growth means costly downtime and a lengthy, expensive cleaning before the tank can be used again.

After an expansion in 2005, the customer wanted to add an automatic filter to his CIP loop and remove any debris left in the tanks. This expansion added more fermentation capacity, but

with the additional volume came the need for more frequent – and more efficient – CIP cleanings.

To address this concern, the

customer tested a Ronningen-Petter DCF 1600 in early 2005. The test results exceeded expectations. As a result, the customer was quoted a DCF 1600 – 3 system for each of the two 350 gpm systems.

After receiving the quote, the customer determined the ROI to be six to eight months – based on the savings they would realize by continuously removing the debris and circulating the liquid through the filter and considerably extending caustic life.

The customer also had a decision to make. Where would be the best place to install the filters? It came down to two choices. They could install the filters in the CIP loop and filter the entire flow, or they could install the filter as a side stream off the CIP mix tank.

The CIP loop is active about every 2 hours based on the size of the tanks and the length of fermentation. The loop off the CIP mix tank could be run on a continuous basis with product making multiple passes through the filter. In this location the flow rates could be reduced to filter a side stream that would turn over tank capacity approximately every 10 – 15 minutes.

In the second half of 2005, the customer was hit with two price increases from his caustic supplier. The increased cost of the caustic and the more frequent CIP cleanings made purchasing the filters a priority.

Based on these events, the customer purchased two DCF 1600 – 3 filters with semi auto packages to interface with the plants DCS system. The customer installed the filters in the CIP loop and filtered the full flow. The filters were installed in the second quarter and will be on line by mid year 2006.

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