

Technical Assistance for Improved Water, Chemical, and Energy Utilization – Crossflow Filtration at a Winery



Challenge

Glenora Wine Cellars seeks to improve its filtration unit to minimize health hazards and save money.

Solution

NYSP21 evaluated different crossflow filtration systems and determined which would meet capacity requirements.

Results

- Annual savings related to the reduction of filter pads and diatomaceous earth, less product loss, and less labor required to filter the wine
- Reduction in the use of diatomaceous earth lowers the potential risks associated with handling this powder material in the workplace

Challenge

Glenora Wine Cellars in Dundee, NY, produces about 60,000 cases a year. Their current solids filtration process uses plate and frame filters that require filter pads and diatomaceous earth (DE). The operating cost of this system is approximately \$73,000 annually. The DE poses an inhalation risk for workers.

Solution

New York State Pollution Prevention Institute (NYSP21) performed a detailed equipment search to determine which crossflow filtration systems are currently available. NYSP21 performed engineering analysis to look for significant differences among the various systems. A financial analysis template was created to estimate payback on capital investment for the different commercial systems.

Results

There was sufficient justification for Glenora to consider the implementation of crossflow filtration as a replacement process for their current solids filtration process:

- Annual savings related to the reduction of filter pads and diatomaceous earth, less product loss, and less labor required to filter the wine
- Reduction in the use of diatomaceous earth lowers the potential risks associated with handling this powder material in the workplace
- Best for larger size production lots



Implementation

Implementing a crossflow filtration system has dramatically sped up and simplified Glenora's workflow in the cellar, allowing them to filter a minimum of 500gal/hr to 0.2micron nominal in a single pass. The system is much gentler on the wine versus using multiple pad filtration. The fully automated CIP function of the crossflow filtration system saves quite a bit of set-up and clean-up time. The ceramic membrane is a more rugged membrane type that can handle higher solids and some bentonite.

However, it is important to note that Glenora's large and fast crossflow filtration unit is not practical for any production lot less than 80 gallons. Glenora still needs to run a pad filter for crush clients that are still bottling single barrel lots.

Partners



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