Zapping the problems out of winemaking filter slurry

Rabastens Winery

Case story

Dealing with filter slurry from modern winemaking was a challenge for Rabastens Winery in France. Foodec decanter centrifuge technology from Alfa Laval proved to be a cost-slicing solution that also reduced environmental impacts.

Rabastens Winery is using Alfa Laval Foodec decanter technology to deal with their filter slurry

Better solutions to known problems

Vinovalie is a group of four leading cooperative wineries in southwest France. Currently cultivating more than 10,000 acres, Vinovalie is the largest producer of red and rosé wines in this important wine-growing area of France. This means the Group is constantly on the lookout for better solutions to problems both known and new.

Many wineries use earth filters (with diatomite or *kieselguhr*) for removing solid particles such as skins and pips from the grape must after the initial pressing. Diatomaceous earth is a soft, naturally occurring siliceous sedimentary rock that in powder form is ideal as a filter medium because it is extremely porous.

However, this traditional form of filtering results in large amounts of effluent that wastewater treatment plants won't accept because of the high concentration of solids (often up to 40%), and also because the silica-based structure of the saturated *kieselguhr* makes it very abrasive for machinery and equipment in the plant.

Installation of the Foodec decanter at Rabastens

This means that for many wineries the only viable path for disposal of this slurry involves trucking the slurry away for spreading on fields. The high water content makes this slurry heavy – and therefore expensive – to transport, and it's generally both difficult and costly to dispose of. There are also substantial undesirable environmental impacts involved.

All these downsides make slurry management a significant hindrance for expanding and optimizing winemaking set-ups.

The Rabastens approach

In 2012, contacts between a Vinovalie advisor on the one hand and Bruno Bernet and Delphine Ray of Alfa Laval France on the other led to a new approach to the many slurry issues indelibly associated with earth filters – a solution that was then a big innovation in the world of winemaking.

The result of this initiative is that Rabastens Winery in southern France, part of the Vinovalie Group, has implemented a new approach to this problem, using Foodec decanter centrifuge technology.

The slurry from the earth separation process, containing 40% suspended solids, now passes through a single Foodec

Samples of liquid and solids outlet after separation with Foodec decanter

decanter centrifuge. This separates it into a clarified liquid (containing less than 2% solids) and a dewatered, biodegradable paste.

The relatively clean liquid can be sent to the local wastewater treatment plant, while the relatively dry paste can be used as fertiliser on local fields, with greatly reduced transport costs. Rabastens Winery reports a 50% saving on this key item of expenditure, and a corresponding reduction in resulting greenhouse gas emissions.

Image caption for 2 pictures to the right: Samples of liquid and solids outlet after separation with Foodec decanter.

Technical development for toughness
Rabastens Winery and Alfa Laval worked together to thrash out the feasibility of the idea and the process, and to conduct on-site trials – with excellent results. This led to Rabastens Winery providing full validation of the technical innovations involved, and a successful sale, installation and commissioning of the finalised Foodec decanter configuration.

Rabastens Winery has also reaped the benefits of other Alfa Laval technology breakthroughs. The conveyor flights on the Foodec decanter are treated with ultra-hard TM42 tungsten carbide to make them exceptionally resistant to the abrasion and wear traditionally associated with processing kieselguhr, due to the millions of silica-based diatoms it contains.

Cross-fertilization of ideas pays off
This new way of using Alfa Laval centrifugal separation technology is a great example of the kind of cross-fertilization of ideas and technology capabilities available from one of the world's leading technical experts in this particular field.

Alfa Laval has a 50-year track record of successfully installing decanter centrifuges for countless kinds of separation within the food industry – from producing wine and beer to vegetable oil and from coffee to soy protein, casein and lactose. Alfa Laval has also been a technology leader in using decanter centrifuges in industries as different as wastewater processing, mining and pharmaceuticals.

This means there's a wealth of in-depth experience and problem-busting expertise on tap within the company, immediately available for innovative application in new contexts and to address new practical challenges.

For example, the idea for applying this kind of separation technology in winemaking actually came from Alfa Laval experience with reducing the volume of kieselguhr slurry in breweries by as much as 80%.

Similarly, the know-how for configuring the tungsten carbide wearing surfaces of the conveyor flights in the Foodec set-up delivered to Rabastens Winery stemmed from another successful Alfa Laval project.

Many minds make light work.

PFT00693EN 1407