

Wray and Nephew appoint Puresep to help them reduce effluent and improve efficiencies at their Jamaican winery

Dwight Bali, Head of Engineering at **J Wray & Nephew UK**, the distributor of the Appleton range of rums, knew the Jamaican based winery needed to improve efficiencies and productivity in its filtration process and reduce its waste disposal costs. Due to Puresep's knowledge in the food and beverage industry, they were commissioned for the project

The existing process involved 90,000 litres of wine being fermented into 100,000 litre holding vessels. The fermentation process took nine days, once fermented, the wine was fed to a fining vessel where finings were added forcing the yeast to settle at the bottom of the vessel. The fining process took a further nine days. The produce then continued through coarse filtration using a horizontal leaf filter and then fortification and sheet filtration prior to bottling. The waste amounted to approximately 10,000 litres per day, containing high levels of wasted alcohol but also chemicals causing environmental issues.

Wray and Nephew were keen to improve the process, and reduce not only their costs but also their environmental impact and so approached Puresep for their recommendations. Puresep recommended using a PureFlow CrossFlow microfiltration technology. Using this in place of the fining stage removed nine days from the production



process as well as solid removal phase and the horizontal leaf filtration stage. Sheet filtration was then only necessary depending on the requirements of each product.

Not only did the CrossFlow reduce the production time, but through dia-filtration, reduced the quantity of the waste, along with recovering a significant amount of the alcohol and chemicals in the waste stream. This meant the cost of waste disposal was reduced and the environmental impact lessened.

A fully automated CIP function was also installed on the vessels, enabling, if selected – the cleaning of the microfilter as well as the feed vessels. The microfilter feeds into two bright vessels. An automated gas chase was installed to clear the pipes of any remaining residual.



Benefits

Previously, connections and valves were set manually with personnel physically setting the filtration routes. Now the pipework is fabricated stainless steel, with double seat mixed proof valves and all automated.

Part of the project scope was to fully automate the control of the production process. Puresep installed a fully flexible HMI system that allows minimal manual input and from the touch of a button; product runs, ingredients, batch settings, fermentation etc can be programmed or altered where necessary. The HMI System also offers data from the last ten production runs including: the operator, time, date, fermenter used, bright tank vessel used and so on.

A central SCADA was installed so that a local PC in the office can view the entire filtration operation. It gives a real time graphical representation of what is happening on the floor. It also has the functionality to run reports on the last 10 filter runs and download into excel. This is constantly logging up to a couple of hundred runs, giving tighter management control. The automated HMI and SCADA system can be accessed remotely by the Puresep engineers, using an IP address into the PLC offering enhanced post commissioning optimisation and support.



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