

Ceramic membrane cross-flow technology – leading the pack

By Paul Baggio, Australian Winemakers Ltd.

The wine industry has keenly been seeking an alternative process to wine filtration. Filtration cartridges and the future use of carcinogenic diatomaceous earths will slowly be a winery practice of the past in light of recent investments by leading wineries locally and abroad. McGuigan-Simeon wines purchased for the 2003 vintage a 200m² Della Toffola ceramic membrane cross-flow filtration system, joining the host of 200m² and 400m² units already in use in Europe.

The successful move forward into ceramic membrane cross-flow filtration by leading winemakers in Australia, notably Master Winemakers in the Yarra Valley, is

a big pat on the back for the many months of trial and test work conducted by the team at Australian Winemakers, said Ben Shaw, national east coast sales manager for Australian Winemakers Pty Ltd.

“The cross-flow technology in conjunction with and the Della Toffola team and our own engineer, Trevor Wilson, have demonstrated extensively the unit across all major wine groups in Australia over the last 12 months,” said Shaw.

Trevor Wilson, who headed up the trial team, commented that ceramics have been used in petrochemical and pharmaceutical industries for over 50 years. “It was inevitable that ceramic membrane cross-flow would soon, too, dominate the Australian wine industry,” he said. “With competing cross-flow membranes, restrictions as to the temperature the wine must be filtered at, or fear of pressure hammers or under pressure or over pressure, make competing membranes limiting or restrictive by comparison to ceramic membrane technology.

“At present we can ensure at least a lifespan of 10 years for Della Toffola ceramic membranes. I guess within the next few years we would hope to see the same membrane life as the pharmacy industry is experiencing with ceramics, and that is 15 to 20 years!”

Paul Baggio, managing director of Australian Winemakers, commented that ceramic membrane cross-flow technology uniquely provides a technology for winemakers that can potentially eliminate all batch processes currently being employed by large wineries today.

“With the most modern pressing technology providing free run juice with a maximum of 1% solids, flotation and cross-flow of white juice all in continuous is very much a reality, said Baggio. “Centrifugation of juice and most definitely wine is some thing of the past. A cross-flow filtration system such as the ceramic membrane Della Toffola cross-flow technology is a far more versatile investment for winemakers. The same membranes can be used for juice filtration during vintage, for the filtration of post-ferment wines, and has proven itself excellent for filtration post or pre-cold stabilisation. The technology comes into its own as a media to handle wine ready for bottling,” said Baggio, adding that the financial logic was too obvious for the industry to ignore.

Whilst cross-flow filtration is nothing new, Trevor Wilson suggests ceramic membranes are something very exciting. “I have



Ben Shaw and Rob Paulazzo assistant winemaker at Master Winemakers with the ceramic membrane cross-flow technology.

worked with cross-flow membranes for over 15 years and traditional cross-flow membranes as synthetic or micro fibre alternatives were always delicate and prone to rupture.”

He said ceramic membranes had demonstrated themselves to be far superior in their resistance to hot boiling water and/or abrasive cleaning agents. “Add the mechanical higher pressure resistance Della Toffola ceramic membranes have displayed, compared with older cross-flow technology, and the difference in filterability over a wider range of wine and juice products for the ceramic membranes is understandable.”

Wilson said that with his many years involved with cross-flow technology, only ceramic membranes could provide Australian wineries with the most trouble-free, versatile cross-flow investment.

A unique feature of the Della Toffola cross-flow design is that, unlike other systems, Della Toffola provides for its membranes to work in a module format. That is, in a 200m² unit there are four separate 50m² modules. Most impressive, however, is that each of these modules can be isolated so that if only 100m² needs to be utilised via a very easy press of a button on the PLC control, the operator can use 100m² for red wine filtration and when finished use the second 100m² to filter white wine without down time or stoppage time.

“The design benefits extend even further,” Wilson said. “One of the biggest problems with older cross-flow media is that not only do they foul easily, when they do it is near impossible with most systems to isolate the ruptured membrane. As the membrane media accounts for 95% of all cross-flow costs, Della Toffola provides state-of-the-art technology within its PLC that enables, via a very quick and simple press of a button, isolation of any damaged membranes or non-performing membranes. This facility alone ensures that maximum value is derived from an investment with a Della Toffola cross-flow unit.”

The technology has been impressive with the 200m² unit at McGuigan Simeon Wines at Loxton processing juice at nearly 100 litres per square metre per hour. Similarly white wine and Red wine work conducted at many wineries around Australia have seen the technology put through its paces, showing the technology to be superior as an investment for the broadest winery applications.

News flash

It is very much as they say, “Be careful not to blink as technology is just moving so fast!” said Ben Shaw. With a new wide channel to be released into Australia for 2004, Della Toffola can now enable customers to swap and change modules of existing 0.2 or 0.45 micron membranes to the 2.5mm wide channel membrane to enable them to additionally cross-flow filter ‘lees’.

“Filter earth and pre-coating filters will soon be wine history,” Shaw added. ■