

# Australian wineries investing in 'New World' of ceramics



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## Summary

*The wine industry has been keenly seeking an alternative process in wine filtration. Filtration cartridges and the future use of carcinogenic diatomaceous earths will slowly be a winery practice of the past in Australia. Leading wineries are joining their European counterparts using the Della Toffola Ceramic Crossflow Filter. Ceramics have been used in petrochemical and pharmaceutical industries for more than 50 years. It was inevitable that ceramic membrane crossflow would soon dominate the Australian wine industry.*

The successful move into ceramic membrane crossflow filtration by leading winemakers in Australia, notably McGuigan-Simeon at Loxton and Master Winemakers in the Yarra Valley, marks the inevitable shift of local winemakers to the highest quality end in filtration: ceramic membranes. Joining these enterprises, Casella Estate has ordered a 200sqm and 600sqm crossflow unit for delivery this April. These local customers signify a big pat on the back for the many months of demonstration work conducted by the team at Australian Winemakers and the manufacturer of this technology, Della Toffola.

Crossflow technology has been demonstrated extensively across all major wine groups in Australia over the last 12 months. With competing crossflow membranes, there are some restrictions as to the temperature at which the wine must be filtered, some restriction as to the limit of chemical sanitisation and the temperature of the water used to recover the membranes after filtration and fear of pressure hammers or over-pressure. At present we can ensure a life span of at least 10 years for Della Toffola ceramic membranes. I imagine that within the next few years we hope to see the same membrane life reach the longevity the pharmacy industry is experiencing with ceramics, and that is 15-20 years.



Installation of 200sqm ceramic crossflow filter at Loxton.

## Best payback

Ceramic membrane crossflow technology uniquely provides a technology for winemakers that can potentially eliminate all batch processes currently being employed by large



A touch screen offers a simple way of staying in control of filtration processes.

wineries today. With the most modern pressing technology, providing free-run juice with a maximum of 1% solids floatation and crossflow of white juice in a continuous manner, is very much a reality.

Centrifugation of juice and most definitely wine is almost a thing of the past. A crossflow filtration system 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.

Current trials are using the crossflow to filter directly into the filling bowl of bottling lines. This will be a significant step forward for wineries and bottling facilities with regards to cost savings on disposable filtration mediums.

## Technology generations ahead

A unique feature of the Della Toffola crossflow design is that, unlike other systems, Della Toffola provides for its membranes to work in a module format. This means that in a 200sqm unit there are four separate 50sqm modules grouped into 2 x 100sqm units. Most impressive, however, is that one of these 100sqm module units can be isolated. This means that if only 100sqm needs to be utilised by the very easy press of a button on the PLC control, the operator can use 100sqm for wine filtration.

The design benefits extend further. One of the biggest problems with older crossflow media is that it was nearly impossible to isolate a ruptured membrane. With the Della Toffola crossflow, however, a simple clarity check followed by an integrity check isolates the membrane at fault. This membrane can then be removed and changed at minimal comparative cost or isolated for later change. This facility alone ensures that maximum value is derived from an investment with a Della Toffola crossflow unit.

This technology also offers wineries the capability for operator multi-tasking during filtration operations. Once the filter is set to run, the operator can be utilised elsewhere within the winery for the duration of the cycle. Minimal operator



Compare the difference. Left: Sample Viognier from tank. Right: post-filter. Samples taken at the same time.

interface is required, it is basically “set and forget”.

**Maintenance**

During the life of the crossflow, minimal maintenance is required. At the completion of each cycle, other than a quick overview of the machine, no other maintenance is necessary. When the machine is not going to be used for a period of time, the machine

is washed, emptied and switched off. There is no need to soak the membranes in liquid during this shut down phase, they can be stored dry.

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

The technology has been most impressive with the 200sqm unit at McGuigan Simeon Wines 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 and shown it to be superior as an investment for the broadest of winery applications.



First cold water rinse post-white wine filtration.



Residue in tank at completion of filtration of Viognier wine. Photo taken through expansion chamber of tank.

**Indicative**

results are that both red and white wine have met or exceeded the flow-rate requirements, cleanliness and micro analysis levels of the wineries without any detrimental effects to the wine taste or colour.

**Why Della Toffola Ceramic Membranes over hollow fibre membranes?**

- Better long-run filtration cycles achieved by ceramic membranes
- Improved turbulence design in ceramic membranes allow for better self cleaning and provide improved long-run stable filtration runs with ceramic membranes
- Della Toffola supply standard stainless steel module housings versus plastic modules
- Ceramic membranes have better mechanical resistance than hollow fibre membranes. Ceramic membranes allow for steam, boiling hot water, hot caustic, high pressure 'back wash' programs.
- CIP advantages of ceramic membranes provide ultimately better operational management of the cellar environment and improved automation of filtration capability overall.
- The physical footprint of Della Toffola Ceramic Crossflow units in ratio are near half that of hollow fibre units. This has very powerful implications for mobility of units and general overall winery versatility in investment.
- Change-over membranes can be singularly identified and individually replaced. With hollow fibre the entire module is required to be handled.

**Conclusion**

With some of Australia’s largest wineries getting behind Della Toffola ceramic membrane technology, my expectation is that winemakers across the industry will look to integrate the many benefits into their own practice.

If you are looking for a solution for your winery, whether for juice, cold stability, cellar wine or for sterile bottling, consider the many process and financial benefits Della Toffola’s ceramic crossflow filter can provide.

For further information email [sales@australianwinemakers.com.au](mailto:sales@australianwinemakers.com.au) or phone (03) 9486 8200 to speak to your nearest sales representative. ■

**Have you always thought that Ceramic Membrane Technology was not in your league or budget?**

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- Complete stainless steel fabrication

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