

CASE STUDY

CAUSTIC RECOVERY

Treasury Wine Estates – Ryecroft Winery McLaren Vale, SA



Australian Government
Grape and Wine Research and
Development Corporation



Data from Constable (2007) demonstrated the benefit of segregating aggressive caustic wash water, with approximately 92% of sodium and 16% of potassium in winery wastewater found to originate from tank sludges. Caustic recovery can reduce the caustic going into waste (by reusing caustic), and also reduce the potassium going to wastewater (by concentrating potassium and tartrate in the recovery stream). Examples of caustic recovery are Yalumba's Oxford Landing and Treasury Wine Estates Ryecroft Winery.

The Ryecroft Winery uses a cleanskin strategy for as many tanks as possible. A caustic strategy is used for heavily tartrated tanks. The cleanskin strategy is to minimise, and the caustic strategy is reuse.

The typical tank wash process at Ryecroft is:

- Rack wine off lees.
- Rack lees to lees recovery tank (Squeegee used to maximise recovery and reduce as much waste as possible).
- Rinse/clean with cleanskin.

Cleanskin is recycled through several tanks before being disposed to the wastewater system. It is estimated that cleanskin use has been reduced by about 50%.

For heavily tartrated tanks (e.g. cold stabilisation) the process moves to a caustic wash consisting of:

- Rack wine off lees.
- Rack lees to lees recovery tank (Squeegee used to maximise recovery and reduce as much waste as possible).
- Aggressive water rinse (rinse water to rinse tank for recycle).
- Caustic wash.
- Citric rinse.

The caustic recovery procedure at the Ryecroft Winery is being refined. It consists of:

- Preparation of caustic wash solution from about 5% wt/vol of water in a 1 kL intermediate bulk container (IBC).
- The IBC is transported by forklift to the tank where the wash is to occur.
- Once initial tanks rinses are complete, the caustic solution is pumped into the tank using a pump and spray ball.
- When the caustic wash is complete, the solution is pumped back into the IBC for reuse.
- When the caustic on the IBC is considered spent (pH <10.5), it is dumped into a 20 kL tank for eventual offsite disposal as trade waste.

The Rycroft winery has been able to achieve a 60% reduction in the use of sodium-based cleaners at the site using this simple system. This has resulted in the contribution from caustic to wastewater salt loads falling by approximately two tonnes of sodium per year.

References

Constable, J. (2007) *Winery Wastewater Fractionation to Reduce Pollutant Loads: A Case Study*. Presented at the 4th Australian Wine Industry Environment Conference, 2 August 2007.

Acknowledgement

Gary Lyons, Rohan Wighton, Treasury Wine Estates

Caustic and rinse water IBCs in use at the Rycroft winery.

