



FACT SHEET

WINERY EFFLUENT WATER TESTING

Knowing your waste is the first step to developing and maintaining a wastewater management system that works for your winery. The composition of your wastewater will change during the course of the season (vintage to non-vintage), so regular monitoring is crucial to understanding its characteristics and to developing effective treatment strategies. Analysis of wastewater post treatment then determines the effectiveness of the treatment operations and the suitability of the water for its end use, whether that be disposal to the sewer or recycling on site.

Regular analytical monitoring of wastewater quality in Australia should be performed by NATA accredited laboratories, as directed by the government co-ordinated National Water Quality Management Strategy.

At Winechek, we have packaged together a group of NATA accredited tests into a convenient and cost effective **Effluent Water Test Bundle**. This set of tests will give you an overview of the quality of your wastewater so that you can make informed decisions about treatment and end-use, as well as meeting state regulations for monitoring.

The Effluent Water Test Bundle includes analysis of the following:

Biochemical Oxygen Demand (BOD)

BOD is the amount of oxygen required by aerobic organisms to carry out oxidative metabolism in water containing organic matter. As winery effluent can contain high levels of organic acids, sugars and alcohols from grapes and wine, they can have a high requirement for oxygen for biological decay, resulting in high BOD values. If water with high BOD values is used for irrigation, it can deplete the soil and soil micro-organisms of oxygen, reducing their capability to break down organic matter.

Electrical Conductivity (EC)

This is a measure of salinity in wastewater. High EC levels in effluent, if intended to be used for irrigation, can have a detrimental effect on plant growth by increasing the osmotic pressure in the soil, decreasing water availability to the plant.

pH

Winery wastewater can be quite acidic, so it should be monitored to ensure it is within a certain range to limit corrosion and fouling of pumping and irrigation systems. Prolonged use of acidic water for irrigation can affect the pH balance of the soil, requiring application of lime-based fertiliser.

Nutrients: Total Nitrogen (Total Kjeldahl Nitrogen, Nitrate/Nitrite) & Phosphorous

If effluent is recycled, the nitrogen and phosphorous it contains can be utilised by plants. The concentration of these nutrients is important, as they can be toxic to plants in high amounts. Their relative concentrations should also be considered, as the balance of these nutrients in wastewater can affect the efficiency of biological treatment operations.

Total Dissolved Solids (TDS)

TDS is the concentration of dissolved anions and cations in the effluent. High levels can affect water uptake by crops as well as the nutrient balance in soils.

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Total Suspended Solids (TSS)

High levels of solid organic matter present as suspended solids in effluent can make treatment operations more difficult and cause potential odour problems. Reducing TSS can be achieved by settling and/or screening.

Sampling Method

Samples should be taken in a 500ml plastic container, completely filled to exclude any air and forwarded to the laboratory as soon as possible. If you are unable to get the sample to the lab within 2 hours of sampling, refrigerate sample before and during transport.

GENERAL COMPOSITION OF WINERY EFFLUENT

Parameter	Vintage	Non-Vintage
Biochemical Oxygen Demand (mg/L)	1,000 – 8,000	<1000 – 3,000
Electrical Conductivity (ms/m)	100 - 500	80 - 400
pH	4 – 8	6 – 10
Total Kjeldahl Nitrogen (mg/L)	5 – 70	1 – 25
Total Phosphorous (mg/L)	1 – 20	1 – 10
Total Dissolved Solids (mg/L)	<550 – 2200	<550 – 850
Total Suspended Solids (mg/L)	100 – 1300	100 – 1000

NOTE: Values taken from the National Water Quality Management Strategy publication: Effluent Management Guidelines for Australian Wineries and Distilleries and should be used as a guide only. There are major differences in effluent characteristics between wineries due to differences in winemaking and treatment processes.

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