

FACT SHEET

VOLATILE ACIDITY VERSUS ACETIC ACID

Volatile acidity can be measured by steam distillation using a Markham Still, however this method requires specialised equipment and is laborious and time consuming. An alternative approach is to measure acetic acid using an enzymatic based method.

In fact, comparison data shows that there is an excellent correlation ($r^2 > 0.94$) between volatile acidity as determined by steam distillation and acetic acid measured enzymatically using an autoanalyser (Buick and Holdstock, 2003). Measurement of acetic acid can also be performed using a benchtop spectrophotometer and commercially available test kits, with excellent correlation to results obtained by steam distillation ($r^2 = 0.9961$).

Analysis of 353 wines showed that average volatile acidity results obtained by steam distillation are slightly higher than those obtained using an enzymatic based method. This is to be expected given that steam distillation measures acetic acid, as well as additional volatile acids.

Wine Type	Number of Samples Analysed	Average Volatile Acidity Result (g/L)	Average Acetic Acid Result (g/L)
Red	194	0.64	0.55
White	139	0.47	0.40
Fortified / Sweet	20	0.60	0.52
Total	353	0.57	0.49

Table 1. Comparison of average results obtained by steam distillation and autoanalyser (Buick & Holdstock (2003)).

Enzymatic analysis of acetic acid is therefore an excellent way to determine volatile acidity, requires less specialised equipment, less training and allows higher throughput of samples. It can also be performed quickly and cost efficiently by your local Winechek laboratory.

Our dedicated team is available to assist you with any enquiries. Kindly visit our website to locate your nearest Winechek laboratory. For analysis pricing, please contact your nearest Winechek.

References

- AWRI (2018), Volatile Acidity, Grapegrower & Winemaker, Issue 648: 16.
- Buick, D., and Holdstock, M. (2003). The relationship between acetic acid and volatile acidity. AWRI Technical Review (143): 39-43.
- Illand, P., Bruer, N., Edwards, G., Caloghris, S., and Wilkes, E. (2013). Chemical Analysis of grapes and wine: techniques and concepts 2nd edition. Patrick Illand Wine Promotions Pty Ltd.