

The Odour Activity Value

The Odour Activity Value (OAV) was devised as a measure of the aroma impact of individual volatile compounds. The OAV of a given volatile can be calculated by dividing its concentration in wine (*this will vary from wine to wine!*) by its detection threshold concentration (*i.e. the minimum concentration at which the volatile can be detected*).

$$\text{Odour Activity Value} = \frac{\text{Concentration}}{\text{Detection Threshold}}$$

If a volatile compound is present in wine at a concentration that far exceeds its detection threshold, then the OAV > 1 and the volatile compound will likely contribute to wine aroma.

However, if the volatile compound is present at sub-threshold concentrations, OAV < 1, so the volatile is unlikely to directly influence wine aroma.

The table below provides the aroma descriptors, wine concentrations, detection thresholds and OAVs of several volatile compounds commonly found in wine.

Volatile Compound	Descriptor	Wine Concentration (mg/L)	Detection Threshold (mg/L)	OAV
hexanol	cut grass	1890	8000	0.2
ethyl hexanoate	green apple	2000	5	400
3-methylbutyl acetate	banana	7000	30	230
geraniol	floral	688	30	23
b-damascenone	stewed apples	1	0.05	20
b-ionone	violets	0.2	0.09	2.2
cis-oak lactone	coconut	121	23	5.3
vanillin	vanilla	45	200	0.2

Adapted from [Smyth \(2005\)](#).