

PVPP UNDER THE SPOTLIGHT



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[Basic Wine](#)

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WHAT ARE THE EFFECTS OF DIFFERENT FINING AGENTS ON THE CHEMICAL AND SENSORY COMPOSITION OF SAUVIGNON BLANC?

This is a question that often arises. In a [previous blog post](#), the effect of bentonite fining on Sauvignon blanc (mainly reporting the effect on the volatile thiols) was reported. In this article, we will look at some of the findings of studies conducted using the **fining agent, PVPP**.

Polyvinylpolypyrrolidone (PVPP) is an insoluble synthetic fining agent in the form of a cross-linked, resinous polymer that functions like a protein when binding to phenolic compounds. It is often added to Sauvignon blanc musts/wines to **reduce the level of phenolic compounds associated with browning and astringency**^{1,2}. It can also be used to remove pink colour and pinking precursor

compounds in white wines. Selective hydrogen binding of flavonols and mono-dimeric phenolics make this fining agent particularly useful for the removal of bitterness and astringency from wine^{1,3}.

STUDY 1-

PVPP ADDITION: PRE-FERMENTATION VS POST-FERMENTATION & LOWER DOSAGE VS HIGHER DOSAGE

A study⁴ conducted on white muscadine wine (*Vitis rotundifolia*, cv. Welder) showed that PVPP treatment (50 g/hL vs 100 g/hL) added either before or after fermentation **1) reduced the total and flavonoid phenol content**, **2) lightened the colour of the wine**, and **3) improved the resistance to browning** when compared to the control (no PVPP added). In general, the higher dosage of PVPP resulted in greater effects. The fining agent did not affect the alcohol, pH or titratable acidity of the wine. The colour composition, total phenolic contents and resistance to browning were **similar between the two stages of addition**: PVPP added before fermentation as opposed to adding it after fermentation. It seems that the phenolic compounds involved in the browning of wine are as readily removed from the juice by PVPP as from the wine.

Even though **chemical differences** between pre- and post-fermentation addition of PVPP was **not noteworthy**, **significant sensory differences were reported**. When added **pre-fermentation there was no detectable sensory differences** between the treated wine and the control. However, when added **after fermentation, the PVPP significantly altered the sensory composition** of the wine when compared to the control. In this case, the majority of the panellists indicated that the primary difference between the control and the treated wines was due to **less "harshness"** in the treated wines. However, it was also noted that the differences between the treated wines and the control were rather small and challenging to detect.

STUDY 2-

PRE-FERMENTATION FINING OF SAUVIGNON BLANC FREE RUN AND PRESS JUICE FRACTIONS

Different juice fractions (free run juice and pressed juice) from two Sauvignon blanc vineyards were fined with PVPP before the onset of fermentation⁵. The free run juices were fined at a concentration of 25 g/hL, while the press fractions were fined at 80 g/hL. The effects of the treatments on the

resulting wines were measured in comparison to a control (no PVPP addition). **Extensive chemical analyses** were performed including the quantification of methoxypyrazines, volatile thiols, esters, acids and alcohols. Some of the main findings are reported:

- The addition of PVPP had **no effect on the general chemical parameters** (alcohol, pH, titratable acidity, volatile acidity)
- The addition of PVPP resulted in a **slight decrease in 2-isobutyl-3-methoxypyrazine (IBMP)**, the main methoxypyrazine found in Sauvignon blanc wines.
- Fining with PVPP had **no pronounced effect on the concentrations of volatile thiols**, 3-mercaptohexan-1-ol (3MH) and 3-mercaptohexyl acetate (3MHA).
- Overall the impact of the fining agent on the wine composition was considered to be small

STUDY 3-

PRE-FERMENTATIVE FINING USING TWO DIFFERENT DOSAGES AND THE EFFECT ON THE PHENOLIC COMPOSITION OF SAUVIGNON BLANC

A study⁶ investigated the effect of pre-fermentation PVPP fining of Sauvignon blanc juice with a **focus on the phenolic composition** of the resulting wine. The results showed **detailed effects** of the treatment on the individual non-flavonoid and the flavonoid phenolics rather than reporting on the total phenolic content.

Results showed **significant differences in the phenolic content** of the two treatments with the **lower dosage of PVPP resulting in higher concentrations of total phenols** (especially low-molecular weight phenolic compounds). There were also differences in the general parameters with the higher PVPP treatment resulting in a wine with higher a titratable acidity and a lower pH. The wine made from juice fined at the lower PVPP dose had a slightly more intense colour when compared to the higher PVPP dose.

CONCLUSION

It is generally accepted that fining agents such as PVPP will not only remove the targeted compounds but also some desirable wine constituents, thereby stripping the wine of aroma and flavour. The findings in the studies summarised in this blog post would suggest that **fining the juice with PVPP has**

a minimal effect on the wine sensory and aromatic composition. As always, the unique composition of a producers juice/wine and the composition and effectivity of a specific product should be considered before use.

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