



Should we be afraid of pinking?

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[Basic Wine](#)
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During one of the sessions at the Concours Mondial du Sauvignon in March this year, we tasted a brilliantly clear wine which had the slightest pink hue. After confirming that there were no blending components to this Sauvignon Blanc wine (such as Sauvignon Gris), I gave the wine a relatively good score for aromatics and taste, while scoring on the lower side for the visual impression.

To my surprise (and somewhat embarrassment), my score came out lower compared to the rest of the panel. So, I mentioned that the wine is pink and enquired about the rest of the panel's approach to handling this type of wine. As it turns out, a slight pink tint is not considered a fault among many international wine evaluators.

Now, just to be clear, I am not talking about a wine colour bordering on rosé. I'm talking about a wine that, in most cases, would pass the consumers lips without a second thought on the colour abnormality.

Which brings me to the next point: Should we be afraid of pinking?

What is pinking?

Pinking is when the colour of a white wine develops to include a pink tint. The intensity of the pink can differ. It leaves the aroma and flavour unaltered and only has a visual effect¹.

What causes pinking?

The exact mechanism responsible for pinking is still unknown, however recent studies suggest that small amounts of anthocyanins are responsible for the pinking phenomenon^{2,3}.

How does it happen?

Pinking occurs when a wine was made very reductively and then undergoes a sudden influx of oxygen⁴. The use of dry ice, inert gas and ascorbic acid during vinification are all considered as reductive handling and can increase the pinking potential of the wine. Exposure to oxygen at a later stage can then potentially cause the wine to pink⁵.

Basically, pinking is an indication of successful reductive handling during the winemaking process (which have many benefits), but the reductive handling was not drawn through to the end product. Oxygen entered somewhere in the production line (often during filtration or bottling) and induced the pinking process.

The pinking potential of a wine is tested by adding hydrogen peroxide to the wine and storing the wine overnight in a dark cupboard. The wine is then visually assessed for the pink colour as well as by measuring the absorbance using a spectrophotometer¹.

Now consider the risk of your wine going through a similar process in its lifetime. Hydrogen peroxide is a strong oxidant and is added to the wine during the test to speed up the process in order to deliver faster test results. But in reality, your wine will never be subjected to this type of severe oxidative treatment (unless done intentionally, off course).

Therefore, you are effectively actually measuring the maximum amount of pinking precursors in the wine and the result is an indication of whether your wine is **able** to turn pink or not⁶.

In many ways its bark is worse than its bite.

So, you have to consider the risk of your wines being exposed to oxygen during the pre-bottling stages (all processes up to bottling) and the post-bottling stages (oxygen permeability of the closure). Measuring dissolved oxygen throughout the winemaking process as well as measuring the total packaged oxygen after bottling will help identify processes where oxygen pickup is a risk and will enable the assessment of possible treatments to prevent pinking from occurring as a result of those processes. If you are confident that your processes and equipment limit oxygen exposure, then the risk of pinking actually occurring in the wine is low. But this is a bit of a gamble...

It is always better to be safe than sorry. There are a few things that you can do to significantly lower the risk of your wine turning pink. It is advised that you test the below options before applying it to the larger wine volume.

OPTION 1: Increase the free SO₂ concentration

By increasing your free SO₂ concentration and maintaining around 45 mg/L will significantly reduce the risk of your wine turning pink⁷. According to Vinlab protocol: lifting the free SO₂ concentration can change your test results from a fail (high pinking potential) to pass (low pinking potential).

If your wine contains a high concentration of metals (high copper = 1.0 mg/L ; high iron = 10 mg/L), the presence of sufficient SO₂ is also critical as the metals can serve as catalysts for oxidation⁸.

Did the wine pass the test?

“Yes” = great! Now apply to the larger wine volume. Still try to limit oxygen exposure as far as possible.

“No” = try Option 2

OPTION 2: Add ascorbic acid (and SO₂)

Ascorbic acid is an oxygen scavenger and can be added before processes where oxygen pickup is a risk (such as bottling)⁴. It reacts rapidly with the oxygen molecule and thus protects the pinking precursors from participating in the reaction and turning pink.

Great care should be taken when using ascorbic acid as the reaction of ascorbic acid with oxygen results in the formation of oxidants which will react with free SO₂. Therefore, maximise the free SO₂ to be able to absorb the oxidative products and protect the wine from oxidation⁴. There are other risks involved with the use of ascorbic acid^{9,5} which will not be covered in this article.

Did the wine pass the test?

“Yes” = great! Now apply to the larger wine volume. Still try to limit oxygen exposure as far as possible.

“No” = try Option 3

OPTION 3 (last resort): Fine the wine with a product that will remove the pinking precursors

Option 1 and 2 are options that prevent the pinking reaction while keeping the precursors in the wine. Option 3 is an approach to completely remove the pinking precursors by fining the wine. PVPP (with or without casein) is probably the most popular product used in the wine industry⁵, however ongoing studies are also testing other products or combinations of products to test for the effectiveness of the removal of the precursors⁸. The time of addition is also critical and prevention is better than cure. If you have experienced pinking problems in the past, then the use of fining agents during the winemaking process is advised (as opposed to fining as a corrective action). The addition of fining agents during fermentation or at other vinification stages has also proven to be more effective compared to fining after fermentation⁸.

The fining of wine to remove the pinking precursors are seen as a last resort as these type of additional treatments (either due to primary or secondary effects) are known to not only remove the pinking precursors, but can potentially also remove other inherent compounds, thereby altering the wine composition. Fining trials can be done to determine the minimum amount of fining agent needed to bring the precursors to a level where the wine passes the pinking test.

Pressed for time? The test does take some time to deliver results, so consider applying all three options to three separate samples and subjecting them to the pinking test, thereby bypassing the waiting period between options.

According to Vinlab protocol:

- Testing the pinking potential of the wine gives you a “worst case scenario”, by no means is it a prediction of what is to happen in the bottle.
- It is important to understand that the pinking test is only for wines that have no pink colour prior to the test. If your wine is already pink in the tank or bottle, subjecting this sample to the pinking test will not give you accurate results.

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