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No-Sulphur-Added Wines (NSA / No SO_2 Added)

Notes on No-Sulphur-Added Wines

To make a sulphur dioxide-free wine, it is important to understand why sulphur dioxide is used in wine in the first place. There are two main areas of application. The first is its role as an antiseptic. It is used to kill yeast, moulds and bacteria. It is in this role that sulphur dioxide is used on harvested grapes and in juice before and just after fermentation.

The second is as an antioxidant. It can inhibit enzymes responsible for oxidation. There is a misconception that sulphur dioxide binds oxygen; it binds the products of wine oxidation.

Modern production techniques and equipment make the use of sulphur dioxide less critical than in the past. Standards of hygiene in cellars are much improved and the widespread use of stainless steel makes cleaning much easier. With the selection of healthy, good quality fruit at optimum ripeness in the vineyard, there is little need to use large amounts of sulphur dioxide at the start of the winemaking process.

In the 2004 season, the cellar began experimenting with the production of wines to which no sulphur dioxide was added. Our fifth vintage of no-sulphur-added (NSA) wines has just been produced, proving that this method of winemaking is a viable commercial proposition.

One must be extra vigilant and attentive to wines made without SO_2 While the winemaker may not add any artificial sulphur to the wine, small amounts of sulphur can be produced during the fermentation process. Natural yeasts can and do make SO_2 but it is very rare for naturally formed SO_2 to be present at bottling above 10ppm.

What prompted the production of a no- sulphur-added wine?

In the organic debate, the United States reserves the label of “Organic wine” for wine made from organically grown grapes and without any added SO_2 and where the SO_2 level is below 10ppm. The majority of wines made from organically grown grapes have added SO_2 but are referred to as organic wines. The majority of organic consumers are under the impression that organic wines contain no preservatives and are surprised to discover that this is not generally the case. Stellar receives constant queries from the public regarding the availability of SO_2 free wines. Producing an SO_2 free wine allows us to recapture the credibility in organic wines while at the same time giving our customers what they want.

What are the benefits?

On the winemaking side the flavours are cleaner and more “transparent”. In red wines the colours are often better. SO_2 can bleach colour.

Shelf life of no-sulphur-added wines

There is a perception that NSA wines have a shorter shelf life that that of conventional wines.

Not all red wines will improve with age. The sulphur dioxide content is not the criterion. The tannin profile, the extract, pH, acidity and volatile acid level all play a role in influencing the longevity of a wine. Some wines will last in a bottle but not necessarily improve, others will improve because tannins are softening and wood influence is integrating into the wine.

Wines need SO_2 at bottling to mop up the effects of the dissolved oxygen that gets into the wine during this process. If this added oxygen is not absorbed into the wine by its tannins and other antioxidants, the oxygen will generate acetic acid and allow the wine to spoil. In the past before sterile filtration became the norm, the SO_2 killed any stray yeast and bacteria found in the wine. Today’s bottle rinsers, and vacuum-pulling, gas-sparging bottle filling machines go a long way to eliminating the problems that made sulphur additions at bottling a strict requirement.

The shelf life of a wine is thus determined by the style in which it was made and how effective the bottling process is in keeping the wine sterile and free of dissolved oxygen.

During five seasons of producing NSA wines, we are seeing the theories match the practical experience. These wines are also made to be bottled quickly and consumed relatively young. It is a bit of a balancing act to keep a wine full of antioxidant tannins but keep it drinkable whilst still young. Our trials with wood- influenced So_2 free wines are working well. These wines have a shelf life comparable to conventional wines of the same style and are still drinking well at the end of two years.

Not all [red] wines are sulphur dioxide-free candidates. There is much that we are still learning. Generally wines that have a special tannin and colour profile are the best candidates. This is something that one must discover by tasting and experience. Generally they are wines with deep colour and rich tannins. Not harsh or astringent tannins. Obviously the tannin structure makes the wine more robust when challenged by oxygen, but it must not be so full of tannins that it becomes undrinkable. The introduction of wood to these wines is a bit of a two-edged sword. On the one hand it would be nice to get the wine safely into the bottle as soon as possible but to get the richness and complexity that wood brings requires some time for the integration of the wood and wine. This time makes the wine vulnerable to oxidation and microbial spoilage. The introduction of wood can also stabilise the colour and act as an antioxidant. The extent to which this happens is not predictable but must be evaluated in each wine.