

WINE ADDITIVES

This paper is directed to grape and fruit winemakers, the following doesn't apply to kit wines because kits are engineered to use only the ingredients included in the package. Use of any of the additives during fermentation will likely throw the wine out of balance. This not say that kit wines can't be modified but generally not by using additives except for oak.

Wine can indeed be made without additives – but it's a big risk, stuck fermentation, oxidation, off odours and flavours etc so why risk it after you've spent time and effort to grow the grapes or spent money to buy them.

I've broken down the additives into two categories, Standard Additives and Advanced Additives.

Standard Additives are those which you WILL need to produce a wine that is both well made and hopefully true to the varietal, however that same wine might be improved by the use of some of the Advanced Additives either instead of or in addition to, the Standard Additives.

So to the Standard Additives. The first is Potassium Metabisulphite, this is essential to protect the wine from oxidation and is always added at crush, and then at various stages during the fermentation and clarification and bottling process.

Next is sugar either Sucrose [Cane sugar] or Dextrose [Corn sugar]. Keep in mind that Dextrose has approximately 75% of the sweetness of Sucrose, that is important when following a recipe.

Pectic Enzymes are the next item. These are added to the juice or must to help break down the cell structure of the grape or fruit, and to protect the finished wine from the formation of a pectin haze or even worse, strings of gooey stuff floating in the wine.

Next, Bentonite. This is a very fine montmorillonite clay and is used primarily to help clarify the finished wine. Some winemakers add it at crush to help settle out solids before commencing fermentation. It is not strictly speaking an essential additive but some form of fining will be required before bottling and some winemakers rely solely on Bentonite.

Acid, that's the next one but generally we are well endowed with acid in all of our grapes, but if they come from California, you might need to add some. It is generally recommended to use Tartaric acid.

Acid reduction. This is more likely what you will need and it can be accomplished using Potassium Bicarbonate, Potassium or Calcium Carbonate, all of which

reduce only Tartaric Acid, or you can use a product that reduces both Malic and Tartaric Acid.

Acid adjustment is a fairly complex topic all by itself.

Yeast Nutrient, This is Diammonium Phosphate [DAP] an inorganic source of Nitrogen which is required to feed the yeast. Grapes and some fruit have varying levels of Nitrogen some of which is available to feed the yeast, however it may not be enough and lack of nitrogen can result in a stuck fermentation.

Unfortunately the measurement of Yeast Available Nitrogen [YAN] is fairly complex and outside the abilities of most home winemakers to measure, therefore as a generalisation 1 tsp / 5 litres of DAP is added. More is not necessarily better as both excess and insufficient YAN can result in off odours.

Yeast. There are many yeast selections available, the six or seven most common ones being available from local wine supply stores. The choice of yeast can be made quite easily by checking the yeast available locally and then check the suppliers web site. There are links to Lalvin and Laffort on the AVV website.

Malolactic bacteria. This is added, principally to red wines to soften the often harsh malic acid. The bacteria converts the malic acid to the much softer and less detectable lactic acid.

Oak. There are many and varied forms of oak, from barrels to powders and all stages in between. In most cases there is also a choice to be made concerning the level of toast and the origin of the oak

Finings. Finings are used to help a wine to precipitate out the dead yeast cells and other solids which are held in suspension during the fermentation process. I have already mentioned bentonite however there are numerous other forms, perhaps the most popular among home winemakers being the two part system using Chitin or Chitosan and Kieselsol

The last standard additive is water and I mention it because its only influence over juice or must to which it has been added is, naturally, dilution either of excessive sugar content [Brix too high] or acid, though it is certainly not the recommended way to deal with high acidity. Here it is unlikely that water will be needed unless grapes from California are overripe, or if you are making a second run, but that's another story for another day.

Now to Advanced Additives, some of these can help you to make better wine but the choice of which to use is up to you. I suggest that you check the information contained on the Lalvin and Laffort web sites as this will give you further insight into these various additives.

Yeast. I have already covered yeasts, but only those that are available locally. There are many more yeasts available and once again I refer you to the Lalvin and Laffort websites where you'll find charts listing the various yeasts and their advantages and disadvantages. Keep in mind that some of these yeast are packaged in large quantities for wineries and are not available in small packages suitable for home winemakers.

GoFerm. Some of you likely just sprinkle your dry yeast on top of the juice or must, however it should be rehydrated and GoFerm is a product that should be dissolved in the rehydration water before sprinkling the yeast over the water

Fermaid K. This is a product that provides actively fermenting and reproducing yeast cells with all of the necessary nutrition. It can be used in conjunction with the standard additive DAP, however DAP is not necessary if Fermaid K is used with GoFerm. In that case the Fermaid K should be added to the fermenting juice / must at about 1/3 sugar depletion.

Opti Red and Opti White. These products round out and smooth tannins in reds, and protect fresh fruit aromas in whites.

Opti Malo. This product provides the malolactic bacteria with a complete nutrient.

These are the advanced additives that are available in small quantities suitable for home winemakers. It is unlikely that you will find them in local wine supply stores but they are available from retailers in Ontario, in particular I deal with Watsons Farms, again there is a link on our web site.

There are of course many more additives listed on the Lalvin and Laffort web sites however many of them are bulk packed specifically for wineries. These would include such items as tannin and enzymes

Tannin. This comes in many forms both liquid and powder for use both during the fermentation and during ageing.

Enzymes. These come in both powder and liquid form and include products to maximise press output, enhance fruit aromas, and colour extraction.