

Lowering the acid content in Wine

There are four methods to lower the acid content of a wine:

Adding calcium carbonate

Calcium carbonate (CaCO_3) is a kind of chalk, which reacts with the acids in a wine. It neutralizes them. An amount of 0.66 grams CaCO_3 per liter lowers the TA with 1 gram per liter. Calcium carbonate can be used up to an amount of 2 grams/liter maximum to avoid its taste getting noticeable in the wine. After the addition of CaCO_3 , wait a day or two and rack the wine.

15
4
7
3
8

More info: Addition of 2.5 grams per gallon of calcium carbonate will reduce acidity by 0.1 %. It reacts preferentially with tartaric acid rather than malic acid. It also raises the pH fairly dramatically. **For these two reasons you will almost never be able to drop the acidity by more than 0.4% by this method.** You should try and keep the pH below 3.5 if at all possible. This material is best used in the fermentor or before fermentation because the calcium ions will affect flavor for some time after use and precipitation during cold stabilization is more difficult than with the potassium salts (it will be more difficult to commence and will continue for a much longer period because both calcium tartrates and calcium malates are less soluble).

a) **If you must drop acidity by more than about 0.1 %**, you should add the calcium carbonate to a small fraction of your batch so that you remove both malic and tartaric acids. After the reaction has completed add this back to the main batch.

b) If you have both high acidity and high pH you may have to actually add tartaric acid (to lower pH even though it increases acidity even further) at a rate of up to 4.5 grams per gallon before you treat with calcium carbonate. Afterwards, you must cold stabilize to reduce the acidity.

Diluting or blending

Blending with a less acid wine or must of course requires that you have such a must or wine available at that time. You can't get a resulting acid content lower than the TA of the wine to blend with.

Blending doesn't just affect the acid content, it alters the wine overall. Try a sample blend of the mixture before you blend the whole batch to see if the two wines taste well together. We'll use the same blending ratio formulas from above.

The blending ratio for raising or lowering the alcohol content of a wine by means of blending can be calculated on exactly the same way.

Example

We've got 5 liters of a wine that is too high in acidity, TA = 15 g/l. The wine we are going to blend with has an acidity of 3 g/l (if you dilute with water, this acidity (B) is 0). Using the formulas from the conversion tables chapter on blending wines (see the blending cross on the right):

A = 15 ('A' must be the highest number)

$$B = 3$$

We want to obtain a wine with a TA of 7 g/l, so:

$$C = 7$$

Now:

$$D = C - B = 4$$

$$E = A - C = 8$$

So we have to blend 4 parts wine 1 with 8 parts wine 2. The blending ratio (proportion) now becomes:

$$\text{proportion} = D : E = 4 : 8 = 1 : 2$$

So we have to add:

$$5 * 2 / 1 = 10 \text{ litres (division because the amount of wine 2 is required)}$$

of the wine to blend with.

So eventually we would end up with 15 liters of a wine that has an acidity of 7 g/l.

Cold stabilizing

Cold stabilizing causes tartaric acid to precipitate as potassium bitartrate crystals when the wine is being chilled. Because the procedure works on tartaric acid, it will only work effectively on grape wines. The wine must be fermented out.

You can cold stabilize the wine by placing it in a cold spot (between -4 and 5 deg C) for a week or two. The wine will get cloudy and crystals will form on the bottom of the carboy. Wait until the sediment has settled and rack when the wine is still cold. For best effect you can add a small amount of potassium bitartrate first, so that the crystals will form more easily.

Malolactic fermentation

This is not a fermentation conducted by yeast, but it is bacteria converting malic acid into the less harsh tasting lactic acid. Malolactic fermentation (MLF) is generally considered a good thing in red wines, but not in white wines. MLF can occur spontaneously when the SO₂ level is kept low. MLF starters also exist. To allow MLF to take place, do not add much SO₂ before MLF fermentation is complete. Specific test kits are available, but a drop in titratable acidity (TA), the acid content of a wine can be noticeable.