

Chilean Juice

Information and Instructions

(these instructions can also apply to other grapes and juices)

Pressed from some of the most well known *Vitis vinifera* varieties grown in Chile's Curicó Valley, one of the finest viticultural regions of the world, these juices provide an opportunity to make fine wine economically with little fuss and mess.

Grapes are harvested and pressed in Chile and delivered in cold storage tanks to the processing plant where the juice is balanced to the below specifications and put into plastic pails. The pails are designated as six (6) gallon but are overfilled slightly to insure the customer ends up with a full six gallons at bottling. The pail's lid has a pressure relief valve as a safety precaution.

EC-1118 yeast, which is the same strain as Premier Cuvée, is already added to each pail.

Juice specs are:

Color	brix° (sugar %)	pH	Titrateable Acid (T/A) %
Red juices	22-24	3.5	0.35-0.36
White juices	22-24	3.4	0.36-0.37

The pails of juice are maintained and transported from the processing plant to the distributors at cold temperatures. It is possible to freeze the juice to prevent fermentation if so desired. At the distributor's location the juices are held at temperature very close to 32°F until customer pick-up. In addition to the juice the basic equipment needed is available from PIWC individually or, for new winemakers, conveniently and economically packaged in a [PIWC Winemaking Kit](#).

Fermenting Procedure

1. Warm the pail of juice up to about 60° - 70°F. You may want to loosen the lid just in case fermentation starts a little early. Stir the juice well.
2. Because the yeast has already been added, it's pretty much a matter of just waiting for fermentation to start. If you have preferred yeast strains you would like to use you can start a proper culture and add at 60°F.
3. **Testing** - If possible before fermentation starts, it is recommended to do your own sugar, pH, and T/A readings to verify actual levels. The necessary testing equipment is available from PIWC but, if you don't have the testing equipment, you can go with the readings on the specification chart above which will be very close to actuals. Stirring the juice before taking test samples eliminates any stratified layers that may have differences in test readings compared to other levels. Again, it is important to stir the juice well.
4. **Acid Adjustment** - Because the acid readings appear to be lower than optimum on these Chilean juices, at some point if you can, we recommend adjusting up the titrateable acid (T/A) by adding [tartaric acid](#) (the main natural acid of grapes). The typical optimum range for red wine is a T/A of 0.5% to 0.6% which can

also be stated as 5 grams/liter to 6 grams per liter. The typical optimum range for white wine is 0.6% to 0.7% or 6 g/L to 7 g/L.

If you are going to make the wine quite sweet, then it may make sense to have the titratable acidity (T/A) at the upper end of the range. The higher acid + the extra sugar balance each other out better.

The acid level can be adjusted at any time before or after fermentation. To raise the T/A by adding tartaric acid use 3.7 grams of tartaric acid powder per gallon per each 0.1 percentage point you want to raise it.

Example:

If your juice is 0.35% T/A and you would like 0.70%, you would need to raise the acid by $0.70\% - 0.35\% = 0.35\%$ (or 3.5 of the 1/10th percentage points). Multiply 3.7 grams of tartaric acid x the number of gallons you have x 3.5 tenth percentage points to raise. $3.7 \times 6 \times 3.5 = 77.7$ grams of tartaric to add to the whole 6 gallon batch to raise the T/A from 0.35% (3.5 g/L) up to 0.70% (7.0 g/L).

If you don't have a gram scale, see the '[Weights and Measures Conversion](#)' chart in the Presque Isle Wine Cellars Catalog or consider purchasing a small, inexpensive [digital gram scale](#) (available from PIWC for about \$20).

5. **Fermentation** - It is perfectly safe to do the primary (starting) fermentation in the pail but it is also OK to transfer the juice to another container. It is advisable to allow for some head space in the fermenting container to prevent foaming over which can be messy.

During vigorous fermentation it is NOT necessary to have the fermenting container completely full nor is it necessary to have the container sealed from air, although using a water-filled airlock right from the start is secure and perfectly acceptable. You should at least set the pail's lid on loosely or put a clean cloth over the container to help keep dust, dirt and bugs out. When the liquid is fermenting, carbon dioxide gas, which is heavier than air, forms a buffer layer between the air and liquid to protect from oxidation.

When the fermentation dies down and BEFORE it stops completely, the container should now have a lid with airlock put on to seal the container from air getting in. If the juice/young wine is in the pail or a wide mouth container, it is a good idea to transfer to a container with a small opening that is easier to fill to the brim and stopper with a [bung](#) and a [water-filled airlock](#) (the air lock lets CO₂ gas from fermentation escape but keeps air from getting in). This will help avoid the wine sitting without protection from air. Air is not a problem DURING fermentation but it is a serious problem AFTER fermentation has ended and having the container completely filled and sealed is essential to prevent oxidation. When fermentation is finished completely it is acceptable, though not strictly necessary, to replace the bung & airlock with a solid bung.

6. **Topping** - As soon as possible after fermentation stops, it is important to eliminate any head space by transferring to a smaller container or topping off the container with a sound, dry, and otherwise suitable wine. Use some from your own stock or purchase a sound, inexpensive wine from a store. While preferable to match, it doesn't have to be exactly the same variety of wine; just something similar that is sound and won't adversely affect the batch. Also shortly before and certainly when the fermentation stops, the wine must be removed from any plastic container and transferred to an inert container such as a [glass carboy](#) or stainless steel container such as a tank or beer keg. [Oak barrels](#) are also an option but are

expensive and not as practical for batches less than 60 gallons due to evaporation losses. If you desire to impart oak character to your wine and are making smaller batches or don't want to invest in barrels, you can use [barrel alternatives](#) such as oak powder, chips or spirals to get the oak influence.

- 7. Hydrometer Test** - If you think fermentation is complete, it is a good idea to VERIFY it by testing the wine with a [hydrometer](#) and [hydrometer jar](#). Hydrometers are calibrated to float and read sugar content accurately in juice (water) but will float differently in wine (alcohol) due to their differing densities and will read sugar content lower than actual by about 1 to 2 brix° or percent sugar. So in fermented juice or young wine the hydrometer will not be exact as to HOW MUCH sugar is left but it can tell IF there is any sugar left. If the hydrometer scale shows a negative number less than minus 1 to minus 1.5 brix°, that indicates the sugar is all used up and the fermentation is complete. If you prefer to use a specific gravity scale on your hydrometer, then a reading less than about 0.996 means there is no sugar left.

Note: The reason it is good to use a hydrometer to verify that fermentation is really complete is that sometimes the fermentation can temporarily stop BEFORE all the sugar is used up giving a false impression the fermentation is complete. The wine getting too cold may stop the fermentation only to have it start up again if the temperature rises. If you had bottled in the meantime you could have corks pushing slightly at the least and corks blowing or bottles breaking at the worst. Even if fermentation LOOKS complete it is good practice to verify it and a hydrometer test is not that hard or time consuming.

- 8. Racking** - Racking is the first step of the clarifying process. Fairly soon (within a week or so) after fermentation stops for certain, the wine should be racked ([siphoned](#)) off the sediment (lees) and transferred to a clean appropriate container (glass carboy, stainless steel keg, or oak barrel) and leave the sediment behind. Top off the container and sulfite the wine after racking.
- 9. Sulfiting** – To help protect against oxidation each time the wine is transferred you should add an [antioxidant](#) such as [potassium metabisulfite](#) (often referred to as “meta”) or [campden tablets](#) (which must be pulverized). The active ingredient in both of these is sulfur dioxide (SO₂). Add 45 parts per million (ppm) potassium metabisulfite which is the same as 45 mg/liter or 0.045 grams/liter. This is equivalent to 0.3 grams per gallon or 1.8 grams for each 6 gallon batch. If you do not have a gram scale, this is equivalent to 1/4 teaspoon for each 5 gallons or about 1/3 teaspoon per 6 gallon batch. Make sure to stir the wine well (AFTER racking of course) to insure thorough dispersion of the “meta”.
- 10. Second Racking** - Rack the wine again in 2-3 months and be sure to add potassium metabisulfite again after racking. The main reason for adding ‘meta’ more than once, such as at each racking, is that when “meta” is added, SOME (typically about a third) of the sulfur dioxide chemically binds with other compounds in the wine and that ‘bound’ SO₂ is ineffective at protecting the wine. It is the unbound, ‘free SO₂’ that does the antioxidant protective work and to maintain the 45 ppm of free SO₂ it is necessary to re-sulfite. The rule of thumb addition of 0.3 grams per gallon of potassium metabisulfite at each racking generally works perfectly well for the typical home winemaker, however it does not take into account the amount of free SO₂ that is already in the wine and can result in generally higher sulfite levels in the wine. Though more complicated and requiring more expensive equipment, measuring the pH of your wine with a [pH meter](#) and the free SO₂ level with an [SO₂ testing kit](#) will allow you to accurately calculate the necessary amount of potassium metabisulfite (“meta”) to add to maintain the 45 ppm.

11. **Third Racking** - In another couple of months or just before bottling we recommend you rack and sulfite again. After the third racking the wine will generally be acceptably clear for most home winemakers, however if you are not satisfied with the clarity you can further clarify the wine using [clarifying agents](#) or more expensive [filtration equipment](#).
12. **Potassium Sorbate** - If the wine is to be finished dry (meaning there is no residual sugar left over or added), you needn't complete this step. NO potassium sorbate (typically called 'sorbate') needs to be added. However, if there is to be some residual sugar left naturally or more added just before bottling to get a desired sweetness in the taste, then [potassium sorbate](#) should be added at a rate of 1 to 1.25 grams/gallon in conjunction with the potassium metabisulfite. Sorbate does not kill yeast but rather keeps yeast from multiplying. After fermentation dies down and there is no sugar left (it should all have been turned to alcohol) the majority of the yeast will die, although there do remain a few live cells but not enough to start a re-fermentation. With sorbate inhibition when the second sugar amount is added during sweetening, those remaining yeast cells can't reproduce to build up to enough cells to re-start a fermentation. If sorbate is NOT used and sugar is added, then live yeast could start to reproduce and multiply enough to start an undesirable re-fermentation in the bottle.
13. **Enjoy** - When all the needed steps are completed and the wine looks, smells and otherwise seems ready to bottle, that process can be completed and you are ready to enjoy your creation with friends and family.