THE BEVERAGE PEOPLE
2011 Summer News and Wine Catalog

A Professional Touch

By Bob Peak

There are many specialized wine improvement products available to the commercial winemaker. Now, in a trail-blazing step like the one when we brought a multitude of commercial wine yeast strains to the hobbyist, we are proud to bring seven of these advanced items to the home winemaking market. Most have never before been available in consumer-size packaging.

These products are not additives in the sense of flavor or color components to be put in the wine. Rather, they are natural winemaking materials or purified derivatives of those products. Used in appropriate amounts and at the right stage of production, they allow the winemaker to get from a particular lot of grapes all the flavor, aroma, and color naturally contained in the fruit. Read on for an introduction to this new range of specialty items, including typical applications, use rates, and desirable effects.

The list of seven fit into the headings that follow: *Enzymes, Enological Tannins and Specific Inactivated Yeasts.*

ENZYMES

For many years, The Beverage People *have offered a single pectic enzyme or pectinase for improved maceration of fruit. Although this product, QR04, is highly effective at breaking down a major fruit component, pectin, just the opposite of adding pectin to make jams "gel", adding the pectin-breaking pectinase enzyme to fruit helps liquefy the pulp and improve juice yield. Along with continuing to offer this basic product, we will now add two enzyme preparations which also break pectin chains to improve juice yield, but with targeted effects that are specific for red and white wines to improve aromas and color extraction.*

For Red Wine Grapes:

LALLZYME® EX.

Extensive research by major wine industry supplier *Lallemand*, shows that this red wine enzyme will result in red wines showing improved mouthfeel; a fuller mid-palate; and softer, gentler finish. Contains a mid-level concentration of pectinase for juice extraction, coupled with balancing concentrations of hemicellulases to increase extraction of juice and pigment from red winegrape skins. Low levels of cinnamyl esterase components prevent over-extraction of undesirable components, even when full phenolic maturity in the grapes may not have been reached in the vineyard.

USE RATE: 10 g per 1,000 lbs. of grapes.

HOW TO USE: Dissolve 10 g in one liter of water or grape juice, then stir evenly into the fermenter with the grape must. If you are also sulfiting the must, do that first and let it stand for 15 or 20 minutes before stirring in the enzyme, as high

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The Mysteries of Malolactic

By Gabe Jackson & Robyn Rosemon

Congratulations you have successfully turned your grapes into wine. The hard work is over and now you can relax! NOT! Fermentation isn't over yet. Now it is time to begin thinking about malolactic fermentation MLF (otherwise known as secondary fermentation). Malolactic fermentation is the process in winemaking where tart-tasting malic acid, naturally present in grapes is converted to softer-tasting lactic acid. Malic acid tastes mostly like green apples. By contrast, lactic acid is richer and buttery tasting. MLF enhances the body and flavor in wine, producing wines of greater palate softness and roundness.

Most malolactic fermentations are done on red wine varietals and barrel fermented *Chardonnays*. In some red wines the choice is optional such as *Zinfandel* or *Pinot Noir*. White wine varietals like *Sauvignon Blanc*, *Viognier*, and *Riesling*, for example, do not undergo any malolactic fermentation. These wines are recognized for their high acid levels and crisp finish. That is not to say that you can't experiment. In 2009 instead of inoculating her Syrah, Robyn accidentally inoculated her Sauvignon Blanc. (She says, "Don't judge me, it was dark.") The wine ended up being quite delicious so she called it Fumé Blanc and entered it in the *Harvest Fair*, where she received a silver medal! On the contrary, the first year that she made Zinfandel she chose not to inoculate with malolactic bacteria (otherwise known as Oenococcus oeni). We all really like fruit forward jammy Zinfandel so she made the choice to pass on MLF. That wine also received a silver medal at the Harvest Fair. The point is that the winemaker gets to decide whether or not to undergo MLF. Equip yourself with the following information on the ins and outs of MLF, so you can decide what to do on your next wine.

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levels of free SO_2 can inhibit enzymatic action. Allow the enzyme to act overnight (or longer, if you do a cold soak) before adding yeast.

Lallzyme® EX 10 g (for 1,000 lbs. of must) QR61.....$5.95

For White Wine Grapes:
LALLZYME® CUVÉE-BLANC.
Lallemand has developed this enzyme mix specifically for skin-contact maceration of white wine grapes. Here, pectinases with higher concentrations of glycosidases lead to low macerating activity with gentler enhancement of juice extraction. Because it is also concentrated in beta-glucosidases, it helps extract natural grape compounds that enhance the aromatic complexity of the finished wine.

USE RATE: 10 g per 1,000 lbs. of grapes.

HOW TO USE: Crush the white grapes (or red grapes intended for producing rosé wine), sulfite as desired, and wait 15 or 20 minutes before adding Cuvée-Blanc. Dissolve in one liter of water or grape juice and stir thoroughly into the must. Macerate for 2 to 12 hours at 41° to 54° F (5-12° C) before pressing the must and continuing with fermentation.

Lallzyme Cuvée-Blanc 10 g (for 1,000 lbs. of grapes) QR63.....$6.95

ENOLOGICAL TANNINS

Just as with our general-purpose pectinase enzyme, we will continue to offer the product F16, tannin, for increasing tannic presence in beverages like fruit wines that are naturally lacking in this component. For grape wines, though, we are pleased to introduce three new products with specific intended effects.

For red wines, tannins extracted from exotic woods, notably the South American tree Quebracho, *have specific beneficial effects on wine. Their primary role is not to add anything, but rather to give themselves up as "sacrificial tannins." Added early in the fermentation cycle, these tannins combine with proteins and other grape components and precipitate out into the lees.*

Because these enological tannins are available for those reactions, natural grape tannins are preserved and are able to combine with grape anthocyanins to create optimally stable color.

Our favorite white wine tannin, is derived from oak gall nuts *and is used to remove excess proteins from white wine fermentation, simultaneously protecting against oxidation and enhancing the softness and mouthfeel of the finished wine. Similar effects can be seen with these tannins in honey meads or fruit wines.*

Finally, for later additions in aging wine, fine oak tannins *can be used to impart character that may be lacking from the grapes or barrel. Especially when derived from quality French oak, these tannins can impart welcome notes of coconut and vanilla, possibly even a perception of sweetness, to a finished wine.*

For Red Wines: FT Rouge Soft.
As the name suggests, this tannin product from the *Quebracho* tree has been formulated specifically to contribute soft, round body to red wines. At the same time, it helps promote natural color through sacrificial tannin activity and reduce the potential for bitter character. Suitable for any red wine, it is especially well suited to Pinot Noir and other lighter varietals or red wines intended for early drinking.

USE RATE: is 50 to 250 g per 1000 lbs of red grape must.

HOW TO USE: Recommended addition time is after the onset of yeast fermentation, such as at the first punch-down. Sprinkle the powder directly over the must and mix thoroughly while punching down.

FT Rouge Soft 100 g (for 400 to 2,000 lbs. of must). QR65.....$7.95

For White Wines: FT Blanc Soft.
The corresponding formulation for white wines, this mixture is based on gall nut tannins and protects white and rosé wines against oxidation while enhancing mouthfeel. It acts as an anti-oxidant, inhibits undesirable mold enzyme activity if present, and can help remove proteins. Also suitable for fruit wines, ciders, and meads, the finished beverages exhibit enhanced texture and improved mouthfeel.

USE RATE: 1 to 3 g for every 5 gallons of juice after pressing.

HOW TO USE: Thorough mixing is important, so it is beneficial to add as the juice is poured into the fermenter or as it is racked off of the gross fruit lees after settling.

FT Blanc Soft 50 g (for 80 to 250 gallons of juice) QR67.....$5.95

Finishing Tannin for Red and White Wines: Tannin Riche.
Derived from 100% toasted French oak, it is particularly useful in wines that may be lacking in mid-palate character or that would benefit from additional oak. In addition to contributing French oak character, it can add hints of coconut and vanilla and a perception of sweetness to the wine. Tannin Riche should be added no later than 3 weeks before bottling.

USE RATE: in white wine is from ½ to 1 g to every 5 gallons of wine; in reds ½ to 3 g per 5 gallons.

HOW TO USE: Mix the powder thoroughly with the wine during a racking. Continue to rack the wine normally after the tannin addition.

Tannin Riche 50 g (for 80 to 500 gallons of wine) QR69.....$21.95

SPECIFIC INACTIVATED YEASTS

In this exciting new category, the closest previous product we have offered might better be called "general inactivated yeast." That is our old standby, product QR16 yeast hulls. That material, used to remove some undesirable wine components and help with sluggish fermentations, can now be supplemented with modern derivatives. The researchers at Lallemand *have selected specific strains of yeast and harvested them at the end of the growth phase. At that point, their polysaccharides are more reactive than yeast that undergoes natural autolysis in the wine.*

With careful selection and refining, these mildly nutrient products (they do not replace your usual GoFerm® and Fermaid K® additions) can be targeted for wine improvements. We have chosen two of them for use by home winemakers.

Continued Professional Touch

Red Wines: **Opti-Red®.** This is an exciting product for those winemakers actively searching for the best color retention and smooth tannic character in their red wines. The catch-phrase often heard among professionals when discussing this product is "big round red." The high levels of yeast cell-wall polysaccharides contribute to wines that are fuller bodied, more color stable, and smoother. Using Opti-Red in the must allows complexing with polyphenols as soon as they are released, resulting in more stable color and reduced harshness and "green" character. It can be used alone, or in conjunction with enzymes like Lallzyme EX. Although it adds a low level of nitrogen nutrient, you should not change your regular nutrient program.

USE RATE: 100 g per 1,000 pounds of must.

HOW TO USE: Sprinkle the material over the must at the time of the first punch-down, then mix in thoroughly.

Opti-Red® 50 g (for 500 lbs. of fruit)
QR72.....$4.95

White Wines: **OptiMUM-White®.** This inactivated yeast is very beneficial in preventing oxidation, enhancing aroma and mouthfeel in white wines. With an exceptionally rich glutathione concentration and a high level of polysaccharides, OptiMUM-White added near the beginning of fermentation actively inhibits development of brown oxidation colors and it helps preserve the esters responsible for notes like grapefruit and passion fruit in wine aroma. The resulting wine retains better freshness and has improved shelf life before showing signs of undesirable white wine aging. Add to white or rosé juice before the start of fermentation. Once again, although it contributes a small amount of yeast-derived nitrogen nutrition, do not change your regular nutrient program while using it.

USE RATE: 1 g per gallon of juice.

HOW TO USE: Add and mix thoroughly while racking the juice off of gross fruit lees. Although it contributes a small amount of yeast-derived nitrogen nutrition, do not change your regular nutrient program while using it. ***OptiMUM-White®*** 50 g (for 50 gallons) QR74.....$5.95

Share a Half-Ton Bin Among Friends

By Robyn Rosemon

Every year since 2006 The Beverage People have taken on a group wine making project. It gives us the opportunity to learn about different wine varietals and explore different yeast options and winemaking methods. To spice it up a bit, we always throw in a healthy dose of competition. We begin the project by choosing the grape varietal and we usually alternate between red and white depending on what seems interesting at the time. Then one or two of us head out to pick (or pick up) the fruit. If we are very lucky we get the fruit delivered here at the shop, although I have to say the adventure of gathering your own fruit is quite a unique experience. (One of the many perks of living in Sonoma County!)

Bob has his own winemaking equipment, so he takes the fruit directly to his house in Petaluma, where he gets to work crushing, pressing and fermenting. Gabe and I process our fruit either at Nancy's house or our own houses with The Beverage People rental equipment. (One might think after all these years we would have our own winemaking equipment!) Each one of us independently follows out our own set of winemaking methods: yeast choices, nutrient programs, temperature control, malolactic options and so forth. The first year we got this tradition started we decided to get Chenin Blanc grapes from Clarksburg near Sacramento. All of the wines turned out great and since then we haven't looked back! So far we have also made Syrah, Merlot, Sauvignon Blanc, and now-- Gewürztraminer. Just as any buyer of fruit we have had variability in quality, which affected how well the wines turned out. The funniest thing we have observed in all of this is how every year one of us manages to make the best wine from the same source of fruit and it's never the same person two years in a row!

For our 2010 project we decided to get our Gewürztraminer grapes from a cool growing region in Mendocino County's Anderson Valley. When the grapes arrived we were all amazed at the color and look of the fruit. The skins were pinkish-orange with little speckled brown spots here and there. The fruit looked plump and healthy and upon breaking open a grape we could see a perfect brown seed and clear juicy flesh. All of us crushed and pressed the fruit and began our fermentations. Post fermentation our routines mostly consisted of racking the wine 3-4 times, keeping the carboys topped up, regularly adding SO_2 and of course tasting!

Right away I think all of us knew we were in for a treat with this wine. Each one of us has observed all of the characteristics Gewürztraminer is known for, in our wines. Like classic commercial Gewürztraminers our wines all have strong floral aroma and lychee nut-like flavor. The fruity aroma and nutty flavors leave an impression of sweetness even though the wine itself is bone dry. The pinkish-orange color of the Gewürztraminer grapes has resulted a faint pinkish blush in the finished wine. It is quite full-bodied, more so than any white wine varietal I have ever tasted or made. But I find the combination of its strong, heady, perfumey scent and exotic lychee-nut and acidic flavor very balanced. If one or more of these components is out of balance bottling with some residual sugar usually helps. Bob, Nancy and I are bottling ours dry and Gabe is considering sweetening.

One of our favorite parts about doing these projects is getting the chance to compare our wines. We usually have a tasting party at the store. One year we even had a picnic! The discussions that we have are pretty light hearted with a joke or two about the success or not-so-success of a particular wine. Another way we like to compare our wines is by entering them into amateur wine competitions. A particularly amusing story is the year Gabe and Bob both entered their Chenin Blancs into the Harvest Fair. Bob found out he got a gold and told us the next day at the shop. Excited to find out his results Gabe quickly rushed to a nearby computer and found that he too had received a gold, except…he also won Best of Class Chenin Blanc!! Within seconds Bob's gold didn't seem as golden anymore.

So far this year Bob is already leading the way with the Gewürztraminer. He has received a Bronze at the Orange County Fair, a silver at the Sonoma Marin Fair and a double gold at the California State Fair! (His self-worth has been restored.)

Cont. Mysteries of Malolactic

THE TALE

There are three primary reasons to put your wine through MLF: stability, acid reduction and flavor. The stability of wine is improved by taking the wine through a complete MLF, ending with 30 ppm of malic acid or less. Residual malic acid above this level still has the potential for unintended fermentation, just as residual sugar in a wine could possibly cause a fermentation to restart in the bottle. Both situations may produce cloudy, effervescent wine in the bottle.

THE CRYSTAL BALL

The fermentation of malic acid results in the production of lactic acid. As each molecule of malic acid is converted to lactic acid, the contribution to titrable acidity (TA) drops by half. In a wine that starts with 0.2% TA from the malic acid (with the remainder of the TA made up of stable tartaric acid), MLF will drop the 0.2% malic portion to just a 0.1% lactic portion. That represents a 0.1% drop in the overall TA. That is a significant change in acidity---the flavor profile of the wine will be much different post-MLF. The combined effect of acidity reduction and change in acid type can turn a bright and sharp wine into a softer, more approachable wine.

THE RITUALS

Our favorite time to perform MLF is at the end of primary fermentation. Most commonly we add the culture when 0 brix is reached. In reds, this means adding it just after pressing. If the culture is added early while sugar is present, there is a risk of producing volatile acidity. The malolactic bacteria can ferment sugar into VA, so it is best not to give them the chance. As long as you choose a strain that can handle high alcohol and is produced for direct addition, add it at the end of primary.

Oenococcus oeni are not the only strain of bacteria that will ferment malic acid. There are wild strains of lactobacillus that sometimes infect our beverages. In brewing, it is a very common spoilage organism and can result in a complete souring of the beer. In wine, it is also best to avoid them. They do not ferment as cleanly as oenococcus oeni and may contribute off-flavors that cannot be removed. A "spontaneous" MLF will likely result these undesirables. Using a laboratory produced package of malolactic bacteria is the most predictable option. Flavor profile, alcohol tolerance, SO_2 tolerance, and other factors are known and reliable. You don't want to risk ending up with a funky and stuck MLF---it's a headache!

We have three pure strains available. For large batches and barrels, use one of the options from Enoferm---we have both Alpha (WY51) and Beta (WY66) strains each intended for inoculating up to 66 gallons. For a carboy you can use the 125 mL package of liquid culture from Wyeast 4007 (WY32). Our most popular choice is Enoferm Alpha due to the high alcohol tolerance (15.5%) and general dependability.

Aside from your choice of culture, the main factors that will determine the success of your MLF are temperature, SO_2 levels, alcohol level and pH. For all of our cultures, temperatures must be above 60° F (65°-70° is best) or the bacteria will go dormant. Post-fermentation SO_2 additions must be avoided until MLF is complete. Alcohol tolerance of our cultures is in the 14.5-15.5% range (check your culture). You can see from those numbers that some wines, especially those big Zinfandels, can be difficult to get through MLF. There are rarely issues with pH. As long as you are above pH 3.2 it will be okay. We rarely see wines below that in Sonoma County.

THE DIVINATION

Assuming that your numbers look good and you can keep the wine temperature warm enough for active fermentation, you should be able to complete MLF in 3 to 6 weeks. How do you know when it is done? Ask your winemaker friends, but you may want to sit down to really enjoy the answers you get. Everyone has a trick. None of them work very well. Most are either guesswork or something like divination. Here's a few popular answers.

1: You can see little CO_2 bubbles in the wine when it is active.
2: You can hear it crackling by putting your ear to the barrel.
3: It smells like tennis shoes while fermenting.

These all contain bits of truth, but also contain some winemaking myths. There is no way to know whether the CO_2 production is from sugar fermentation or MLF and none of these techniques gives you a way to decipher between a complete and stuck MLF. Of course, there is this next reply.

4: Oh well, a stuck MLF will finish in the spring when it warms up again.

While it is possible and sometimes this strategy works, it requires you to forego your normal SO_2 additions that keep your wine protected through the fall, winter, and spring months.

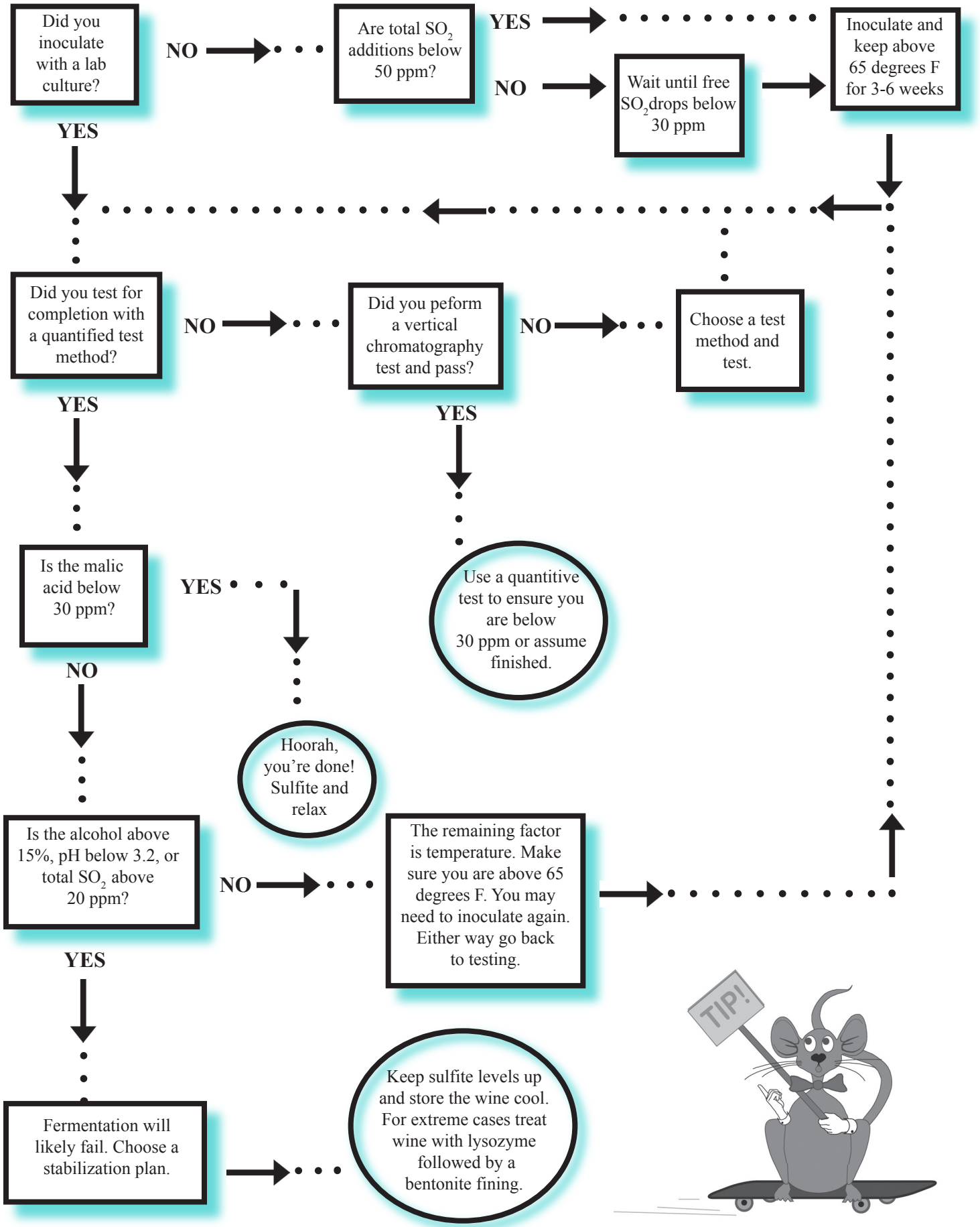
THE DISCOVERY

Once you believe it is done, test it to confirm completion. The only reliable method is to perform a test or have a sample tested at a lab. For home use we have a Vertical Chromatography test kit. It is a fun test to perform giving you a colorful chart showing the presence or absence of malic, lactic, and tartaric acid in your wine. Unfortunately it does not give you quantified results. If you bring a sample into our shop, you can run a malic acid test on our Reflectoquant meter ($5 meter use fee plus $5.95 per test you perform) and get your result in ppm of malic acid. Remember you want it to be below 30 ppm for assurance of stability. It's a happy time for winemakers when the MLF is done and they can "put their wines to bed" for the winter.

THE TRUTH REVEALED

At *The Beverage People*, we have hundreds of conversations each year about these fermentations. We have heard all the problems and helped people complete MLF successfully year after year. We have seen winemakers struggle at it, especially when they get stuck. Our conversations with winemakers always follow a definite decision making course. So we decided to lay it out for your use---we created a MLF flow chart! Our first recommendation is to inoculate as discussed above, keep the temperature up and finish successfully in 3-6 weeks. If things should go awry with your MLF, take a tour of the flowchart. It will help guide you to a successful finish.

The Secret Guide to Malolactic Fermentation



Winemaking Step by Step

EQUIPMENT

For most beginners, the hardest thing about making wine is simply figuring out, in advance, what equipment is going to be needed. This list should set most of these fears to rest. (See the back of the catalog for rental equipment choices and rates.)

You will need the following:

1. Siphon Hose and Racking Tube
2. Hydrometer (Saccharometer) and Test Jar
3. Acid Testing Kit
4. Sulfite Test Kit
5. Crusher or Stemmer/Crusher
6. Press
7. Corker
8. Thermometer
9. Pressing Bag (optional)
10. Funnel
11. Bottle Filler
12. Small Bucket
13. Punch Down Tool

For every 75 lbs. of grapes:

1. 10 Gallon Food grade Bucket and Lid
2. One 5 gallon glass carboy (water bottle) with a fermentation lock and a #6 1/2 or #7 drilled rubber stopper. Or PET plastic carboy with a #10 drilled rubber stopper and fermentation lock.
3. Extra jugs, each with a fermentation lock and #6 drilled rubber stopper. These could be gallon size or smaller.
4. Twenty–five wine corks.
5. Two cases wine bottles.

INGREDIENTS

1. Wine Yeast, 1 gram per gallon of must or juice. (see pg. 11 for recommendations)
2. Grapes, 16 lbs. per gallon of wine.
3. Tartaric Acid as needed.
4. Sulfite as needed.
5. Yeast Food as needed.
6. Fining Agent (optional)
7. Malolactic culture for some wines.

RED WINE PROCEDURES

1 **Crush (break the skins) and de-stem the grapes**. For most grape varieties, about 90% of the larger stems should be removed.

2 **Test for total acidity following the instructions in your acid testing kit.** If the acidity is less than .6%, add enough tartaric acid to bring it to that level. If you have a pH meter, also test the pH.

3 **Test for sugar with your hydrometer.**
Correct any deficiencies by adding enough sugar to bring the reading up to at least 22°Brix or add water to bring the sugar down to a range between 22° and 26°Brix.

4 **When these tests and corrections have been completed, the must should be sulfited.** Estimating that you will get roughly one gallon of juice yield for every 16 lbs. of grapes, calculate the anticipated amount of juice. Using this estimate, add enough sulfite to give you a sulfur dioxide (SO_2) level between 50 and 130 parts per million (ppm). (See pages 12 & 13.) The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose. Extremely clean grapes may be fermented with little or no SO_2. (If using Lallzyme ® EX enzyme, wait 15 or 20 minutes after sulfiting, then add enzyme as noted on pp. 1-2.)

5 **Unless you have found it necessary to add more than 65 parts per million SO_2 in step 4, yeast should be added immediately.** If using more than 65 parts per million SO_2, you must wait six hours before doing so. Add 1 -2 grams of dry wine yeast per gallon evenly across the surface of the crushed grapes (now called "must"). Stir it in thoroughly after eight to twelve hours. Also, begin your nutrient program according to the instructions on page 10.

6 **The must should be stirred twice a day until fermentation begins.** The beginning of fermentation is obvious, as the grape skins are forced to the surface, forming a solid layer, called a cap. Once the cap has formed, mix it back down into the fermenting juice twice a day using your hand or a stainless steel punch-down tool until it is ready to be pressed. (If using FT Rouge Soft Enological Tannin and/or Opti-Red® Specific Inactivated yeast, sprinkle them over the must and mix in at the first punch-down.)

7 **Throughout fermentation, the temperature of the must is usually between about 60 and 75°F.** For better color extraction from the skins, it is helpful to allow the temperature to rise at least once to the 80-90°F range. The fermentation itself generates some heat, which helps warm the must along with warm fall weather. If it is late in the season you may need a heater.

8 **When the wine has reached 0° Brix** the grapes **should be pressed to separate the wine from the skins.** This is usually about 1-2 weeks of fermentation at 70-80°F. During pressing, collect the wine into a bucket under the press and funnel the wine into secondary fermentors. Attach fermentation locks, and allow the containers to settle until all visible signs of fermentation have ceased (several days to a week or so). Top full when all activity ceases even if you have to add wine from another batch, or buy a similar wine, remember, you get to drink it later.

Winemaking Equipment from crush to bottle.

Crushing and stemming your grapes.

Time Line for Red Wine Fermentation.....

Active Yeast Fermentation of Must in Primary Fermentors	Pressed wine moved to Secondary Fermentors (leave a little room for foam for a day or two, then top up.)	Rack off gross lees and top up containers	Rack off lees again, test for ML, add sulfite and store in cool place for aging, topping and sulfiting every couple months. Add oak sticks or barrel age.	Rack off lees, adjusting sulfite, fining or filtering, or just topping up	Rack to bottling container, adjust flavor with oak extract, add sulfite, cork and store. ...Usually in time for next harvest.
...5 to 14 days	...1 to 2 weeks	...1 month	...4 to 6 months	...1 to 3 months	

9 **Add an ML (malolactic) culture** (optional) to the wine which, in the case of direct pitch strains like *Enoferm Alpha or Beta,* **is added to the secondary fermentors after pressing.**

10 **When the wine has begun to clarify in 1-2 weeks, rack the wine off the gross lees** into clean, sanitized storage containers (glass, stainless steel, or oak). Top up the containers and let stand for a month. If ML fermentation is still active do not add sulfite during this time.

11 **After one month, rack the wine away from the lees again,** add sulfite to 25 or 30 ppm, and keep in topped up containers for four to six months. You must top up barrels, and visible inspect carboys. This is a good time to add oak alternatives such as sticks or cubes. Add sulfite every few weeks. If you inoculated for ML, test the wine to be sure it is complete.

12 **Rack off the lees again,** and retest to see if the ML fermentation has finished. If completed, raise the sulfite to 20-30 ppm and store in a cool place for aging. If ML fermentation has not completed, keep the sulfite level below 20 ppm and warm the storage containers for a month to encourage completion. (If using Tannin Riche Enological Tannin from French oak, mix it with the wine during a racking at least 3 weeks before bottling.)

13 **Usually during the summer** (just before you need your storage containers for the next year's crush), **carefully rack the wine to a sanitary bottling container, then siphon into bottles and cork them.** Keep the bottles neck-up for one week to allow the corks time to expand, then move the cases to their side or upside down for storage. Bottling time is your last opportunity to make sure the wine will be bottle stable, so test and adjust the sulfite to 30 ppm. If this is a sweet wine, add Sorbistat to keep the wine from further fermentation. Most red wines will benefit from at least one year's additional aging.

White Wine Procedures, see next page.

Pressing the fermented red grapes.

WHITE WINE PROCEDURES

1 **Crush the grapes** to break the skins**.** It is not necessary to de-stem them, but it does not hurt if you happen to have a stemmer/crusher. Keep the grapes as cool as possible.

2 **Test for total acidity.** If the acidity is less than .65%, add enough tartaric acid to bring it up to that level.

3 **Test for sugar with your hydrometer.** Correct any deficiencies by adding enough sugar to bring the reading up to 20° brix for most varieties (22° for Sauvignon Blanc and Chardonnay.) If higher than 26° brix, add water to lower it between 22° and 26°.

4 **When these tests and corrections have been completed, the must may be sulfited.** Estimating that you will get roughly a gallon of juice from every 16 lbs. of grapes (varies with the variety), add enough sulfite to give you a sulfur dioxide (SO_2) level between 50 and 120 parts per million (ppm.) Note: The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose and very clean grapes may get by with little or no sulfite.

5 **Stir in pectic enzyme at the rate of one ounce to every 200 lbs. of grapes, or use Lallzyme® Cuvée-Blanc as described on page 2.** Place the crushed grapes in a covered container to macerate from 2 to 12 hours. If left to stand longer than 2 hours at this stage, the crushed grapes should be refrigerated.

6 **The grapes are then pressed to separate the juice from the skins.** Funnel the juice into topped up containers, cover, and let stand for approximately 24 hours.

7 **Siphon the clear juice away from the layer of settlings (called "gross lees") into a glass, stainless steel, or oak fermentor which is filled no more than 3/4 full.** (If using FT Blanc Soft Enological Tannin, mix it with the juice during the transfer to the fermentor(s). This is also the time to add Opti-MUM White® Specific Inactivated Yeast as described on p. 3.)Yeast should be added, 1 gram per gallon and a fermentation lock attached to the fermentor. Add nutrients according to the instructions on page 10.

8 **When visible signs of fermentation end, the wine must be racked off the lees,** and placed in topped up storage containers (glass, stainless, or oak). Add sulfite, 30 - 40 ppm. and let stand for a month.

9 **Rack off the lees.** Fine with a sparkolloid or bentonite slurry if clarity is not satisfactory. Sulfite and store full containers in a cool place.

10 **In a couple of months, rack and sulfite the wine again, placing it back in topped up containers.** This is a good time to filter if the wine has not clarifed with fining adequately on its own. For oak flavor add oak sticks or cubes. If additional high-quality French oak character would benefit your wine, use Tannin Riche as described on p. 2.

11 **In late Spring, before the onset of very hot weather, carefully rack the wine from the lees.** Test the wine for free sulfite content with a sulfur dioxide test kit to determine how much SO_2 is needed to bring the level to 30-35 parts per million.

12 Siphon into bottles, cork them, and set them aside for whatever bottle aging is needed. If you wish to sweeten the wine, do so with simple syrup (two parts sugar to one part water, boiled), and add 1/2 tsp. Sorbistat per gallon to inhibit any remaining yeast. White wines may be enjoyed 6 weeks after bottling.

Time Line for White Wine Fermentation.....

Active Yeast Fermentation of Juice in Primary Fermentors 3/4 full	Rack finished wine to clean Fermentors, topped full. Settle out lees. Sulfite	Rack off lees and fine or filter. Add sulfite and cold stabilize. Add Oak	Rack to bottling container, add sulfite, fill and cork bottles.
...1 to 2 weeks	...1 month	...2 to 4 months	...In the spring

Fruit Wine Procedures, see next page.

Placing the wood blocks and press head into the press before pressing the grapes.

FRUIT WINE PROCEDURES

Use the following procedures for 5 gallons of Berry or Stone Fruit Wines:

1 Smash sound, ripe Berries (or pit Stone Fruit), tie loosely in a straining bag and place in open top fermentor.

2 Heat 6 quarts **Water with Corn Sugar** and bring to a boil. Remove from heat, cool and pour into the fermentor over the fruit.

3 Add the remaining **Water**, **Yeast Nutrient, Pectic Enzyme and Tartaric Acid.** Add 5 crushed **Campden Tablets.**

4 Cover with loose plastic sheet or lid and allow to cool and dissipate the sulfite, waiting for 12 hours or overnight.

5 Stir in the **Yeast.** Once fermentation begins, **stir or push** the pulp down into the liquid twice a day.

6 After 5-7 days, strain and press the pulp. Funnel the fermenting wine into closed fermentors, such as glass or plastic carboys, and attach a fermentation lock. *Note: if this fermentation is very active, you may need to divide the wine between two carboys so it won't foam out and spill.*

7 When bubbles are no longer actively rising through the wine, siphon the wine back together into one full carboy. **Optional: Fine with Sparkolloid see pg.15 for mixing Sparkolloid,** add 3 Campden Tablets and store for four weeks with an airlock.

8 Rack (siphon) away from the sediment, top full with a neutral wine and leave under airlock for 3 weeks up to 4 months.

9 For **bottling**, **rack into an open container**, and add 3 crushed **Campden Tablets.** Sweeten with **sugar syrup** to taste and add 1/2 teaspoon **Sorbistat** per gallon to stabilize. Siphon into bottles, cork, and set aside to age for at least 3 weeks.

Berry, Plum, or Cherry Wine Recipe

20 lbs. Blackberries or
15 lbs Raspberries or
15 lbs. Pitted Plums or
22 lbs Cherries or
15 lbs Sour Cherries
(omit acid addition for sour cherries)
12 lbs. Corn Sugar
4 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
8 tsp. Tartaric Acid
5 g Epernay II Wine Yeast

Original Brix: 20
Total Acid: .6-.65%

EQUIPMENT NEEDED FOR 5 GALLONS OF FRUIT WINE OR CIDER

1. 6.6 Gallon Food grade Bucket and Lid.
2. Nylon Bag to fit bucket.
3. One 5 gallon glass carboy (water bottle) with a fermentation lock and a #6 1/2 or #7 drilled rubber stopper. Or PET plastic carboy with a #10 drilled rubber stopper and fermentation lock.
4. Racking tube and flexible tubing.
5. Bottle filler
5. Corks or crown caps.
6. Two cases wine or beer bottles.
7. 25 pack of Campden Tablets
8. Corker or Capper

Optional:
1. Hydrometer (Saccharometer) and Test Jar
2. Acid Testing Kit

CIDER PROCEDURES

1 Crush the apples. Use only sound, fully ripe fruit. (We rent an electric grinder and press.)

2 Stir in **pectic enzyme** powder to accelerate break down of the fruit pectins. Use 1/2 oz. per 100-150 lbs. of fruit, with a contact time of 2-4 hrs, to achieve better runoff at press.

3 Press to separate the juice from the skins and other solids. Funnel the collected juice into closed containers, filled no more than 75% full.

4 Add your **yeast**. Attach a fermentation lock, and allow fermentation to proceed.

5 When visible signs of fermentation end, the cider must be racked off the lees and placed in topped up glass, or stainless steel storage containers. Let it stand for a month.

6 During the racking at the end of fermentation, add 3 crushed **Campden Tablets**. **(Optional: Fine with Sparkolloid see pg. 15 for mixing Sparkolloid)**

7 After a month, rack and sulfite again then rack it back into topped up containers. Store for two or three more months.

8 Carefully rack away from the lees. If your cider is going into extended bottle storage, add 3 crushed Campden Tablets. Beverages such as this may often be enjoyed within two months of bottling. If you plan to drink some that soon, don't add additional sulfite to that portion at bottling time.

9 Siphon into bottles, cork or cap them, and set them aside for whatever bottle aging is needed. If you wish to sweeten, do so at bottling time with simple syrup **(two parts sugar to one part water, boiled)**, if you do this add 1/2 tsp. **Sorbistat** per gallon to to stabilize the cider and prevent re-fermentation in the bottles. Force carbonation in a keg is also an option. See page 8 in our 2011 beer catalog for instructions on kegging.

Cider Ingredients

100-150 lbs. Apples
for 5 gallons of juice
1 oz Pectic Enzyme
10 g Epernay II Yeast
25 pack Campden Tablets

Brix: 10-13
Total Acid: .6-.65%

New Book!!

This book is for anyone who wants to grow apples and to make good cider!

BK47 $15.95

JUICE TESTING FOR SUGAR, ACID, PH & NUTRIENTS

Your Testing Program

Crush your grapes and deliver a settled sample of juice to your nearest laboratory (a 250 ml bottle is the minimum volume requirement for most chemical analysis.) We have three labs near the store, Vinquiry in Windsor (707) 838- 8612, Scott Labs in Petaluma (707) 765-7666, and ETS in Healdsburg (707) 433-7051. Contact them to find out information on cost as well as possible shipping options.

There are three tests deemed most essential in the majority of winemaking situations. By testing these three things: Sugar, Acid, and pH, you will have the minimum level of information needed to make wine. Instruments and kits are available at The Beverage People for testing these parameters at home. (See pg.14)

In addition to the three tests mentioned above you may also want to find out the level of nutrients in your juice. Adequate nutritional levels help ensure a healthy yeast fermentation, and also help avoid problems such as: stuck fermentations, or the"rotten egg" smell of Hydrogen Sulfide.

As far as nutrients are concerned, there are two tests a home winemaker would utilize: one for *Ammonia*, and one for *Assimilable Amino Nitrogen*. The results of these two tests are added together to determine the total amount of *Yeast Assimilable Nitrogen (YAN)* present in the sample. When these figures have been combined, the result (logically enough) is called *Yeast Assimilable Nitrogen Combined (YANC)*. It is this *YANC* figure, in combination with the sugar level of the must, that tells us the nutritional requirements of our juice. If you are interested in these numbers, you will need to use a commercial lab. No home tests are available for these parameters.

Adjusting Nutrients

Because different strains of yeast have different nutrient requirements, talking about YANC levels can quickly turn complex. For our discussion here, we will consider the natural juice level of YANC in one of 3 levels: Low YANC < 125 ppm, Medium YANC 125-225 ppm or High YANC > 225 ppm.

We also divide the yeasts into three levels of nutritional need (see table on page 11). LOW, MEDIUM AND HIGH-VERY HIGH. Once you know your YANC level, it may influence your choice of yeast. Choosing one with an appropriate nutrient need will minimize your nutrient additions.

After your yeast choice is made select a nutrient addition program from the following table by first choosing Low, Medium or High YANC level and then the Yeast Nutrient program of *Low, Medium or High-very High*.

Note: all of this advice is based on "moderate" sugar levels up to 22° Brix. For high- sugar musts, choose yeast both low in nutrient requirements and high alcohol tolerant. Increase the yeast pitch 50% and add both 1 gram DAP amd Fermaid K per gallon of juice when 1/3 of the sugar has been fermented.

Yeast Nutrient Needs

YANC LEVEL	*Low*	*Med*	*H-VH*
LOW	**A**	**B**	**E**
MEDIUM	**C**	**D**	**E**
HIGH	**C**	**C**	**D**

Nutrient Programs

A) Add enough DAP to bring your YANC up to 150 ppm about 8-12 hours after pitching yeast.

For ***program A***, use these levels:

50 ppm or less YANC, add 2 grams DAP per gallon.

50-100 ppm YANC, add 1 1/2 grams DAP per gallon.

100 -125 ppm YANC, add 1/2 gram DAP per gallon.

125+ ppm YANC, add no DAP

In addition, about 1/3 of the way through fermentation, add 1 g/gal. of Fermaid K (or Yeast Food).

B) Do all of ***program A***, plus:
Add an additional 1/2 g/gal. DAP and do a second addition of 1 g/gal. Fermaid K when roughly 2/3 of the sugar has been consumed.

C) Add no DAP. Add 1 g/gal. Fermaid K about 1/3 of the way through fermentation.

D) Follow **program C**, plus add another g/gal. of Fermaid K about 2/3 of the way through fermentation.

E) Follow **program A**, plus add 1 g/gal. DAP and 1 g/gal. Fermaid K about 2/3 of the way through fermentation.

Shipping Juice

Remember that you are sending juice, and that means it is subject to fermentation. *A laboratory* must receive your samples before fermentation begins! Unless you take your clarified juice to the lab yourself, you should do one of two storage methods:

Freeze the juice in the sample jar (with the lid loose). When the sample is solidly frozen, reseal it and ship via next day air.

Pasteurize the juice, heating it up to 180°F., keeping it there for 2-5 min. Do not boil. Cool, freeze, and ship via next day air. In any case, talk over sampling and shipping with your chosen laboratory before you start.

Which Nutrient...When?

Add **Fermaid K** (Yeast Food) at the rate of 1 oz. per 32 gallons early in fermentation and prior to ML. Provides a complete and balanced food for yeast. Use with DAP if you know you need more nitrogen. Contains ammonia salts, amino acids, sterols, unsaturated fatty acids, yeast hulls, vitamins, magnesium and pantothenic acid.

Go-Ferm Use 3 oz. per 1000 lbs. of grapes, mixed into 2 quarts distilled water at 110F. Cool mixture to 104F or below and add 70-80 grams of yeast. Allow yeast to bloom for 15-30 minutes. Pitch into must. (1/4 oz. per 100 lbs. of grapes in 8 oz. water, adding 7-8 grams of yeast.)

Diammonium Phosphate - DAP will raise the level of free nitrogen for a healthy fermentation. Contains only ammonium phosphate. Use varies, but 1 oz. per 32 gallons is a good starting addition.

Autolyzed Yeast is used to restart sluggish and stuck fermentations. Contains pure dried yeast providing amino nitrogen, B vitamins and yeast hulls from autolyzed yeast.

Yeast Hulls help prevent stuck and sluggish fermentations and with Autolyzed Yeast to restart fermentations. This is the pure cell wall membrane of whole yeast cells and is more concentrated than autolyzed yeast. Also used to absorb toxic compounds.

YEAST RECOMMENDATIONS

Locate your grape variety or style, read about the yeast characteristics for the recommended strain(s).
We stock all of these during harvest.
Please read page 10 for **Nutrient** programs for yeast.

To find fermentation specifics, read down	Assmanshausen	Beaujolais	Brunello BM45	CSM	Epernay 2	French Red (BDX)	ICV D254	M-2	RP15 "Rockpile"	ICVD21	Prise de Mousse	Rhone L2226	RC212	Steinberger	VL1	43
Varietal	Pinot Noir	Zinfandel Syrah	Sangiovese	Bordeaux	Zinfandel	Bordeaux	Chard Red Rhones	Chard, Cabernet	Syrah	Big Reds	White, Red	Rhone	Pinot Noir	German White	Dry Whites, Viognier	Restarts, Zin, Late Harvest
Fruit Wines	YES	YES			YES						YES	YES	YES	YES	YES	
Enhances Fruit		YES			YES		YES	YES		YES					YES	
Enhances Mouthfeel	YES						YES	YES		YES					YES	YES
Sensory Effect *	EVC	Estery	EVC	EVC	EVC	EVC	EVC	Estery	Complex	Estery	Neutral	EVC	EVC	EVC	EVC	YES
Reduces Vegetal Character	YES			YES	YES			YES								
Stabilizes Color	YES			YES		YES	YES		YES	YES		YES				
Cold tolerant					YES						YES			YES		
Use to Restart											GOOD	GOOD				EXCELLENT
Temperature Range F.	68-86	59-86	64-82	59-89	50-80	64-86	50-85	59-86	59-90	59-90	50-86	59-82	68-86	40-70	60-68	55-95
Vigor	Slow	Average	Average	Average	Average	Average	Fast	Fast	Average	Average	Fast	Fast	Average	Slow	Slow	Fast
Alcohol Tolerance %	15	14	16	14	15	16	16	16	17	16	18	18	16	14	15.5	18
High Alcohol Tolerant			YES			YES		YES	YES	YES	YES	YES	YES			YES
Nutritional Need **	Medium	Low	Very High	High	Medium	High	Medium	Medium	Low	Low	Low	High	High	Low	Low	Low
Reaction to Oxygen ***	Medium			Low			Medium		Low	High	High	Medium			Medium	
Comments	Enhances spiciness	Fruit wines	Extended Macerations	Alternate to BDX	Can be stopped	Ideal Fermentor	Complex flavor Mineral Aromas	Complex	Red fruit, Mineral Tones	Bold Flavors Mouthfeel	Late Harvest	Late Harvest	Good Color	Easiest to Stop Fermenting	Slow, Dry	Restarts Very Well, Red Fruit Character

Notes to Text

*Sensory Effect: EVC = Enhances Varietal Character, Estery = Enhances Fruitiness, Neutral = No Enhancements

** See page 10 for Nutrient recommendations, especially for Medium and High Categories.

*** Also try additions of Oxygen with active stirring during fermentation to yeasts that react to O_2 additions.

SULFITE PROCEDURES

Sulfur has been burned in wine containers to purify them since the days of the Roman Empire, and probably much earlier. The ancients may not have known about the world of microorganisms, but they recognized that sulfur helped make their wines last longer. We now know that sulfur dioxide gas (SO_2) released by burning sulfur was the effective agent for retarding spoilage, and we have a more precise way of adding it these days. We make up solutions of sulfurous acid/water to known parts per million of SO_2. These solutions are stored and added in tablespoons or milliliters to the volume of wine.

After more than 30 years of teaching home winemakers the importance of adding sulfite to wine and monitoring the results with various testing methods, we are convinced that people are still not testing or scheduling SO_2 additions often enough.

Over the past several years we have had a chance to prove this point for customers by employing the testing device called Reflectoquant®. This tester uses a small sample of wine and a test strip that is then treated with two reagents and stored for several minutes before reading by the meter. The actual reading is done by light reflection.

While we have seen improvement during these years, many wine samples are still coming back with only a few parts per million of SO_2. These wines may not even yet show the effects of oxidation, but given enough time in this unprotected state, the fruitiness will fade, browning will occur and the taste will become pruney and harsh. To avoid this you need to understand the basics of why sulfite works so well to protect your wine.

When you add sulfite to wine, sulfur dioxide ionizes to the sulfite ion, $SO_3^{=}$, and bisulfite ion, HSO_3^{-}. A small fraction remains in the "molecular" form, SO_2. It is this molecular form that protects the wine from spoilage organisms and oxidation. As sulfite reacts with other wine components, it becomes "bound" to them and is no longer available to participate in producing "molecular" sulfite.

We cannot measure molecular sulfite directly. Rather, we measure "free" sulfite, and use a table of wine pH values to predict the amount of 'molecular' sulfite we will achieve.

This is why it is so important to frequently measure your free sulfite. No matter how high your total sulfite (within reason), it is only the free sulfite number that really counts. Don't just guess and toss some sulfite in—analyze it first—then add it.

To this end, we offer some advice on ways to keep up with testing your SO_2.

Aeration-Oxidation Method for Free SO_2

This is the original primary laboratory method for sulfite measurement in wine that helps define what "free" SO_2 means. Winery laboratories are often equipped with elaborate blown-glass apparatus for this test that costs hundreds of dollars for a set. Now we have good news for home winemakers. Advances in technology and simplification have brought a complete home-use aeration oxidation system down to a price that makes sense for many hobbyists (see p. 22). The simplified method uses the same technology and chemicals as a full laboratory setup, but at a fraction of the cost. Note that the kit as packed contains just once ounce (30 mL) of 25% phosphoric acid reagent. That is a sufficient quantity for just three tests, but it has the advantage of shipping without a hazardous material shipping surcharge. If you can come in to our store, we can provide you with a 250 mL bottle of 25% phosphoric acid to supplement your kit, but we cannot ship it. If you are outside the Northern California wine country area, look into sourcing this chemical reagent locally.

In the aeration-oxidation method, a wine sample is placed in a small flask and the phosphoric acid is added to force the sulfite ion over into the form of molecular SO_2. A small air pump pushes a stream of air bubbles through the acidified sample. Since sulfur dioxide is a gas, it dissolves in the air stream and transfers through a tube to a trapping solution. In the trapping solution, hydrogen peroxide oxidizes the sulfur dioxide (which is sulfurous acid) into sulfuric acid. That combination—the transfer in an air stream and oxidation to sulfuric acid—gives the test method its name. Also in the trapping solution is an acid-base indicator that changes color as the sample gas accumulates. After the 10 or 15 minute transfer period, the trapping solution is titrated with sodium hydroxide solution to measure the acid formed. The free sulfite level can be calculated from the titration results.

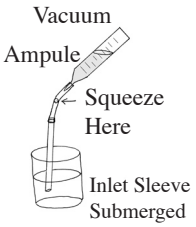
The Reflectoquant Free SO_2 Test

For those of you able to bring a sample to us or to a laboratory, you can use the reflectoquant test. You will need **A FULL**, small bottle, with a fresh sample of wine. (187 mL is more than plenty). Just drop off your sample to the lab for their technicians to test or bring it here and run the test for yourself. We charge $9.95 for one test, and an additonal $4.95 for each additional test done at the same session. It only takes about 10 minutes to set up, pay and run your test, with additional tests taking about 5 minutes.

The Titret Kit

Additionally you can track changes to your SO_2 with the Titret® Kit. Although not very accurate in terms of the quantity of SO_2, in red wines, these tests will show changes as the level of SO_2 diminishes. These are vacuum sealed, graduated ampules that come with an inlet bead-valve that allows you to titrate slowly by squeezing the valve. You have to keep the inlet tube submerged or the vacuum will be broken by air entering. The kit instructions recommend a holder which made the test more difficult to execute. Follow the instructions given here, as their kit instructions are not helpful.

Begin the test by inserting the loose plastic inlet sleeve (which is found behind the cardboard ampule holder) over the tapered end of the glass ampule. Bend the plastic sleeve 90 degrees to break the tip of the ampule. As you do this hold on tightly at the junction of the sleeve and the ampule to prevent the sleeve from sliding off. Next locate the glass bead/valve inside the plastic inlet sleeve. Insert the tip of the plastic sleeve into your wine sample and squeeze the bead to open the passageway for the vacuum in the ampule to pull wine inside the tube. As you squeeze, a color change will occur turning the sample inside the tube dark blue/black. Continue squeezing until a white wine turns light pink or clear. In the case of red wines, it will return to the original sample color. The titration is finished at this point and the ampule is stood up on its flat end. Let the contents of the ampule settle and then read the liquid level at the graduated line of the vial.



Scheduling SO_2 Additions

Initial sulfite may be added at 50-65 ppm to grapes or juice that is free of rot or mold. The presence of a lot of mold, or grapes in otherwise bad condition, might require twice that amount. Under average conditions

the information that follows should keep about 20 to 30 ppm of free SO_2 available throughout the wine's cycle of production through bottling. Add sulfite for white wines at every racking.

Test your SO_2 level at least after fermentation and ML, after rackings and several times while in barrels or tanks and again before bottling. Follow the pH/molecular SO_2 table below for recommendations for additions. Wines that will be consumed within three months of bottling will not normally need a sulfite addition at bottling time as long as they are stored in a cool place until served.

pH and SO_2

It is generally recognized that only a small amount of molecular SO_2 (.5 to .8 ppm.) needs to be present to provide bacterial stability in wine, but pH has an important effect on how much free SO_2 is needed in order to provide that amount, and that's why both pH and SO_2 need to be tested.

Regard the Table of Molecular SO_2 below. The amount of free SO_2 needed, is based on the pH of the wine. A fairly safe amount for protection of the wine is either .5 ppm for Red Wines or .8 ppm for White Wines. If you know the pH, simply make sure you have the corresponding level of free SO_2, or slightly more, present in the wine during storage and bottling.

Above pH 3.5, you will notice that the amounts of free sulfur dioxide required become quite high. Adding enough to create an appropriate level may raise the total SO_2 high enough to have a negative effect on the wine's flavor. It is best not to approach the problem that way. Instead, add tartaric acid early in the fermentation cycle to lower the pH. **(But avoid an excessively high TA)**

Sources of SO_2

SO_2 is available as Campden tablets, effervescent Inodose or by powdered sodium or potassium metabisulfite. A premeasured Campden Tablet equals 65 ppm in one gallon (13 ppm in a five gallon jug) and is very convenient for those making small amounts of wine. You have to crush the tablet to a powder to add it.

The 2 gram Inodose tablets add 528 ppm per gallon or 9 ppm per 60 gallon barrel. They effervesce to disperse evenly in the container. They cannot be divided to accurately dose 5 gallon carboys. Metabisulfite should be made into a liquid preparation before use, to adequately disperse it, and because it is very potent. This is also the least expensive method and accurate to measure for any size container.

Molecular SO_2 needed for Stability

pH	.8 ppm. White Wine	.5 ppm Red Wine
2.9	11 ppm.	7 ppm
3.0	13	8
3.1	16	10
3.2	21	13
3.3	26	16
3.4	32	20
3.5	40	25
3.6	50	31
3.7	63	39
3.8	79	49

PREPARE STOCK SOLUTION

Choose one of the following solutions to add metabisulfite to your wine. Make a 10% solution if your additions are in large vessels and if you work with metric measuring tools. Use the 3% solution for small vessels and use kitchen measuring spoons.

10% Stock Solution

Using a gram scale, **weigh out 100 grams of Sodium or Potassium Metabisulfite and dissolve in 1 Liter of water**. Tightly stopper and store labeled: poison. When adding your sulfite additions make sure you measure carefully.

10% Solution of Metabisulfite

Must/Wine (gallons)	(Desired final SO_2 concentration in ppm.) 10	20	25	30	40	50	75
	(Add milliters of 10% solution)						
1	.6	1.3	1.6	2.0	2.6	3.3	4.9
5	3.3	6.6	8.2	9.9	13.1	16.4	24.6
10	6.6	13.1	16.4	19.7	26.3	32.9	49.3
25	16.4	32.9	41.1	49.3	65.7	82.1	123.2
60	39.5	78.8	98.5	118.3	157.7	187.2	295.7

3% Stock Solution

Dissolve f**our ounces of sodium or potassium metabisulfite powder,** in one gallon of distilled water. This is a weaker solution than the 10% solution given above. However, at this concentration, the solution is still quite strong and should be clearly labeled poison. **Replace your solution every harvest.**

3% Solution of Metabisulfite

Must/Wine (gallons)	(Desired final SO_2 concentration in ppm.) 10	21	33	43	65
	(Add tablespoons of 3% solution)				
1	.15	.32	.50	.66	1.00
5	.75	1.60	2.50	3.30	5.00
10	1.50	3.20	5.00	6.60	10.00

Removing Excess SO_2

If you ever need to lower your SO_2 due to a mistake in calculation try splash racking or stirring vigorously to aerate. If the FREE SO_2 is still too high do the following: for every 10 ppm free SO_2 you want to remove, add 1 ml. of 3% hydrogen peroxide per gallon of wine. An oxidative reaction occurs immediately. Use only fresh 3% Hydrogen Peroxide, available at the drugstore. Use this method to remove up to 100 ppm, more than this and the wine will oxidize and lose its flavor.

Please Note: Avoid confusing the two solution strengths. If you have a scale that weighs in grams, and have access to a pH meter, you should use the 10% solution instructions. Have on hand Pipets graduated in .1 ml to .5 ml, 1 ml to 10 ml volumes and a Graduated Cylinder, with a volume of 100 ml, for large additions. Otherwise, use the weaker 3% solution, using household measuring spoons.

HOME WINE LAB TESTING...SUGAR, ACID, and pH

Having your wines tested at a commercial wine laboratory provides reliable, accurate information. But sometimes it's fun to do your own testing. Or maybe you live too far away to take advantage of commercial lab testing. Sugar, acid, and pH are readily addressable with home testing techniques.

SUGAR

There are three principal methods for measuring sugar content at home: a refractometer, a hydrometer, or a Clinitest® kit. To make a harvest decision in the vineyard, the refractometer is the clear choice. Using the refractometer is very easy. First, calibrate it with a few drops of 20º brix reference solution. Then rinse the prism with distilled water and dry it with lens paper or a clean paper towel. Squeeze the juice of one grape onto the prism, close the cover, and point the refractometer at a bright section of sky. Read the brix level, write it down, and go on to measure another grape until you have taken a representative sample of your crop. Be aware that you may estimate a little high, since you will probably not sample the immature, under-ripe, and second crop grapes that may find their way into your picking bins on harvest day. For a more thorough sample, collect 20 to 100 grapes in a zip-lock bag, crush them with your fingers, and measure the brix level of the resulting mixed juice.

Once fermentation begins, the refractometer can no longer be used, because alcohol confounds the refractive index measurement upon which the sugar reading is based. So, it is time to turn to your hydrometer. Originally invented by Hypatia of Alexandria, the hydrometer has a 1500-year history of reliable service. Gently place the hydrometer in a plastic or glass measuring jar (which minimizes the amount of sample needed), then fill the jar until the hydrometer floats. Spin it gently to free any attached bubbles, then note the reading at the liquid level on the hydrometer stem. Most hydrometers are calibrated in Balling (which is the same as brix), specific gravity, and potential alcohol. Note that the third scale in no way measures alcohol directly—it is just a calculated estimate of alcohol potential based on a measurement of sugar content. Continue to take readings periodically as your wine ferments until you get to zero or below, indicating the end of fermentation. There are also precision hydrometers available if you have a special interest in a particular sugar concentration range.

Finally, when fermentation is all over and you want to assess the final "dryness" of your wine, turn to the *Clinitest® kit*. These tablets, produced for measuring sugar in urine for diabetic patients, can be adapted to measure low levels of sugar (up to one percent) in finished wine. Follow the kit instructions and compare the developed color with the chart provided. Wine is usually considered "dry" at a sugar level of 0.4% or below.

ACID

Commercial labs use a sophisticated autotitrator to execute the traditional winemaking method for Titratable Acidity. They report in grams per 100 milliliters—roughly equivalent to percent.

At *The Beverage People*, we offer four home tests for TA. The most popular is the little *Country Wines* titration kit with its phenolphthalein indicator and sodium hydroxide titrating solution. This is based on the primary lab procedure for the same test, which we also offer (see below). Executed carefully at the kitchen table, it can give precise and accurate results on white wine. Because the visual endpoint of the titration is pink, many users have a bit more difficulty seeing the endpoint in grayish-pink "red" must. If you use this kit for newly crushed red grapes, take your juice sample quickly, before the full red color develops.

Another complete home kit is the Precision Acidometer. This kit includes a blue indicating solution which is itself also the basic titrating material for neutralizing the acid during analysis. The first few additions, still reflecting acid conditions in the juice, turn green. As you continue to add, the solution is neutralized when it is (not quite) blue—almost the same color as the indicator solution alone. Since this has the "not quite" feature, it's a good idea to write down your results as you get close, since you will mostly know for sure right after you go too far. The kit also includes litmus paper to verify the neutrality of the titrated sample. If a drop on the litmus paper turns red, it is still acid. No color change means neutral (the end point) and blue means basic—you went too far with that addition. With the green-to-blue color change and litmus paper for verification, the endpoint seems a little easier to pin down than the *Country Wines* endpoint. With this kit, results are in grams per liter, so you need to divide by 10 to match the reporting units by other methods.

The third and fourth TA methods from *The Beverage People* use full laboratory-scale equipment. The *Indicator Method* Titration Kit and the *pH Meter Titration* Kit both use a Class A buret to add measured amounts of 0.1 N Sodium Hydroxide solution to a wine sample. The indicator method uses the pink color change of phenolphthalein to determine the endpoint and is subject to the same red-wine limitations as the *Country Wines* kit. The pH Meter Method, on the other hand, uses the HI208 bench-top meter from Hanna Instruments for endpoint detection. That meter, which includes a stability indicator to sharpen endpoint detection, is unaffected by the sample color. Even finished, dark red wines can be accurately measured for TA with this system. Detailed instructions are included with both kits.

pH

Wine pH is of interest primarily as a stability factor. As displayed in our molecular SO_2 table (see page 13), the effectiveness of free sulfur dioxide in protecting wine is strongly dependent on the pH. The lower the pH value, the more stable the wine in the long run. While low pH wines also taste sharper than high pH wines, the real driving force for flavor is TA—not pH. That fact highlights the value of doing both tests on your must and wine: TA for flavor and pH for stability.

Laboratories use a pH meter integrated with their autotitrator for this test. If you use the HI208 pH meter for measuring TA, you can record the initial pH value of your wine in the same manner. Other pH measurement options at *The Beverage People* include two models of hand-held pH meters. The *pHep meter* from *Hanna* has a 0-14 pH range, digital readout, and 0.1 pH resolution. The *Waterproof pH Testr 20* from *Oakton* adds the feature of a watertight housing and offers 0.01 pH resolution. All pH meters, portable or benchtop, require calibration prior to use. Our buffer capsule set produces 100 mL each of pH 4 and pH 7 buffer, allowing a true two-point calibration for any of these meters. Prepare the buffer solutions as directed and then use them to calibrate your meter according to the instructions that came with it. Do pH 7 first, finishing with pH 4. That sequence maximizes the precision in the area of wine pH—at or below pH 4.

Note that while precision and accuracy are excellent with both kinds of meters, portable pH meters have inherently slower response times than a bench-top meter and electrode. As a result, a bench-top pH meter is much more suitable for TA titrations than a portable meter. Either works well if you just want to measure pH.

FINING PROCEDURES

Sparkolloid™ and Bentonite are the two most common all-purpose fining (clarifying) agents used by home wine-makers.

Either may be used with success, and in the somewhat unusual circumstance that the wine doesn't clear with the first agent, the other will generally work.

Here's how they are used...

Sparkolloid is used at the rate of 1 to 1.5 grams per gallon, so to fine five gallons of wine, begin by measuring out 5 to 7.5 grams of dry Sparkolloid. Then take about 1-2 cups of water, stir in the Sparkolloid, and heat it on the stove in a saucepan.

Simmer gently (bubbles, but not boiling) for 15-20 minutes, and thoroughly stir the hot mixture into the wine. Let stand three weeks and carefully rack away from the lees.

Bentonite requires that a slurry be made up a day in advance. Measure out 750 ml. of water, and heat it to boiling. Slowly stir in 1 oz. of Bentonite. Mix it thoroughly for about one minute in a blender, funnel it into a 750 ml. wine bottle, stopper it up and let it stand for a day.

Shake up the slurry, and then thoroughly stir 1/4 cup into each five gallons of wine. Rack as usual after 1 to 2 weeks.

To remove oxidation or reduce bitterness, fine with Polyclar. To soften tannins, use either egg whites or gelatin, followed by Sparkolloid.

Always add Metabisulfite when adding a fining agent, to prevent excess oxidation during the mechanical stirring or pumping needed to blend in the agent.

Fining Agent	Rate of Use	Best Used For	Preparation	When
Sparkolloid	5 - 7 g/ 5 gallons	All wines	Heat 1 - 2 cups of water with Sparkolloid, simmer 15 minutes and stir into wine.	Post fermentation three weeks before racking.
Bentonite	1/4 cup of slurry per 5 gallons (See directions above)	All wines	Slurry with juice or water in blender	Rack in 1-2 weeks Allow 3 weeks to settle before bottling.
Isinglass	1 Tablespoon/ 5 gallons	White wines that haven't clarified with Sparkolloid.	Soak in 2 Cups water with 1/2 teasp. Citric Acid for 30 minutes. Add to wine.	Prior to a racking.
Gelatin	1/4 oz./ 5 gallons	Red wines with excess tannin.	Dissolve in 10 oz. hot water, let sit for 10 minutes. Stir thoroughly into wine.	After fermentation up to three weeks before bottling.
Egg Whites	1/2 egg white/ 5 gallons	Red Wines with excess tannin.	Whipped to a soft froth with some wine and water then mixed in thoroughly.	In barrel/glass a month or more before bottling.
Polyclar (Divergan F)	2.5-12.5 g/ 5 gallons	White wines to remove oxidation reduce bitterness.	Thorough mixing Fluffy, difficult to rack off cleanly.	Before, during or after fermentation.
Non-Fat Milk	100-250 ml/5 gallons	White wines to reduce bitterness, adds sweetness.	Follow with Bentonite Fining	Rack after 4 days A month prior to bottling.
Whole Milk	100-250 ml/5 gallons	Reduce harshness absorb aldehydes.	Follow with Bentonite Fining	Rack after 4 days A month prior to bottling.

BARREL CARE

Care of a New Barrel

Brand new oak barrels are about as sanitary as they can be because the wood has been heated over direct fire in the process of making the barrel. This is done in order to bend the staves into place, and also to enhance various flavor accents (such as vanilla and caramel).

Swelling up a Barrel

Like any wooden container, however, a new barrel must be filled with water to make the wood swell and eliminate leaks. These leaks will often seal themselves in only a few hours, or a couple of days. However, the barrel should be continually refilled until the leaks stop, and the water should be changed each day to prevent off flavors caused by bacteria and or mold growth.

Acidifying a New Barrel

It is recommended that an acidic environment be created in a new barrel, which is about to receive wine for the first time. Dissolve in water 2 Tablespoons of ***Citric Acid*** for every five gallons of barrel capacity. Fill the barrel and check to make sure it isn't leaking. Drain the acid water and fill the barrel with wine.

Cleaning at each Wine Racking

Once a barrel has been used for wine storage, additional cleaning and sanitation measures are required. At each racking, rinse the barrel thoroughly with water to remove debris. Follow by rinsing the barrel with an acid wash. Dissolve 2 Tablespoons of ***Citric Acid*** in five gallons of water, sloshing this mixture around the interior surfaces of the barrel for 5 to 10 minutes. Drain, and refill the barrel with wine.

Preparing for Storage

It is always best to keep a barrel full of wine. When this is not possible, start by removing the organic matter that has penetrated into the surface of the wood. This is done with a solution of ***Proxycarb***, a sodium percarbonate based cleaner.

Use 4 oz. (or 8 Tablespoons) of ***Proxycarb*** for every 15 gallons of barrel capacity. Dissolve in a small amount of water, and funnel the mixture into your barrel. Fill the barrel the rest of the way with water. You may leave this mixture in the barrel for as little as 20 minutes or as much as 24 hours. If the barrel has VA (volatile acidity), double the amount of ***Proxycarb*** and leave for 24-48 hours.

Drain and rinse the barrel several times with water. Re-acidify the barrel using one ounce or 2 Tablespoons of ***Citric Acid*** for every five gallons of water. Slosh this all around and drain. Now prepare for storage.

Cleaning Step by Step

1. Drain wine from barrel and hose out visible solids until clear.
2. Add 4 ounces (8 Tablespoons) of Proxycarb for every 15 gallons of barrel and fill with water, let stand 2 - 24 hours.
3. Drain out cleaner and rinse until water is clear.
4. Acidify barrel with one ounce (2 Tablespoons) Citric Acid for every 5 gallons water. Either make this into a volume to fill barrel, or just slosh around a 5 gallon volume and then drain.
5. No water rinse is required after the citric rinse.

Short Term Storage

If it will be less than **two months** before the barrel is used again, drain the barrel, and fill with a ***Sulfite*** and ***Citric Acid*** solution. Use one teaspoon of ***Potassium or Sodium Metabisulfite*** powder, along with 1/3 teaspoon of ***Citric Acid*** for every 15 gallons of barrel capacity. Add enough water to fill the barrel and bung the barrel tightly. Check to make sure sulfur can still be detected inside the barrel, replacing the solution if necessary. Rinse with water before refilling with wine.

Long Term Storage

If it will be **more than two months** before the barrel is used again, drain the barrel and leave it upside down overnight. Next burn a ***Sulfur Strip*** in it, hanging it down at least 6 inches below the bung on a wire. Replace the bung. Remove the sulfur strip after about 15 minutes, and bung the barrel tightly. Burning sulfur releases sulfur dioxide gas into the barrel's interior.

Repeat every two weeks (as needed) until a flashlight reveals no shiny dampness in the bottom of the barrel. Bung up the barrel and store it in a dry place until needed, allowing enough time to soak up and acidify the barrel before the next use.

COPPER TREATMENT

Burnt rubber? At Infineon Raceway, it's a normal aroma. But if you smell it when you rack your wine, you have a problem. "Burnt rubber" is one of many unpleasant descriptors applied to the volatile reduced sulfur (VRS) compounds than can occur during the fermentation and aging of wine. Much easier to prevent than correct, these compounds interact with each other, and the wine, in very complex ways. Simply stated, if you detect this kind of aroma, fix it quick!

The simplest, and generally first, VRS to appear is Hydrogen Sulfide, H_2S. It is commonly described as smelling like rotten eggs (peuw!). Since humans can detect the smell when the concentration in wine is only one or two parts per billion, it doesn't take much to make the wine very unpleasant. While "over sulfuring" in the vineyard (by the vineyard manager) is the most frequently cited cause (by the winemaker), those of you who grow your own grapes and then make the wine have no one else to blame! (Try to go at least 35 days between the last sulfur application and harvest). But let's face it: a much more frequent cause is lack of nutrients—primary amino nitrogen or certain vitamins—during primary fermentation. You can address prevention of that problem by analyzing your juice nutrient level as decribed on pg 10.

But let's suppose the odor shows up anyway (which it may). The most conservative treatment is to aerate the wine during racking—splash it into the receiving vessel (but be sure your free SO_2 level is up where it should be prior to the splash racking—otherwise you may oxidize your wine, turning it brown and Madeira-like). A more effective solution is to treat with copper. When exposed to copper, the sulfide combines with the copper to make copper sulfide, which is not soluble in wine. While some books will tell you to just run the wine over a sheet of copper, our experience has not found this technique highly effective. Instead, the direct addition of a small amount of 1% copper sulfate solution is usually quite effective. Add it at a rate of 3/4 of a milliliter (mL) for every gallon of wine. This will give you a maximum level of 0.5 ppm (mg/L), which is the level allowed in commercial wine. If you must treat the wine again to completely clear the sulfide aroma, you may want to remove residual copper by adding yeast hulls (at a rate of 5 grams per gallon), stirring frequently, and racking again in a few weeks. For the copper treatment alone, rack after a couple of days to leave the black copper sulfide behind (at part-per-million levels you may never see it, but it's there!).

If you have not promptly removed H_2S, your wine may go on to develop more complex VRS compounds. Next in line are the mercaptans: methyl mercaptan smells like burnt rubber or rotten cabbage and ethyl mercaptan smells like burnt matches or dirty ashtrays. These are not volatile enough to remove by aeration, but copper (just as for H_2S) still works. To check for possible effectiveness, clean a copper penny in a mild acid solution (a little citric or tartaric in some water). Place your now-bright penny in a wine glass, add wine, and swirl. Let it stand for a minute or two, and the bad smell should go away if you have a copper- treatable problem. Follow the instructions in this article and your wine should clean up.

So let's go back to the top: 35 days after last sulfur before harvest. Adequate nutrients. Aerate (with SO_2 present) if necessary. Treat with copper if the sulfide aromas don't go away.

2011 WINEMAKING EQUIPMENT

Presses

Wooden cage with steel base on legs, lets you quickly and smoothly press fermented red grapes or crushed white grapes.

Model	*Basket Number*	*Basket Diameter*	*Height*	*Capacity In Gal.*	*Retail Price*
WE02	#25	10"	14"	5	$325.00
WE03	#30	12"	17"	7	$425.00
WE04	#35	14"	19"	12	$500.00
WE05	#40	16"	21"	18	$625.00
WE06	#45	18"	24"	25	$750.00
WE07	#50	20"	26"	34	$825.00
WE27	#40	*(All Stainless Cage and Base and Legs)*			$995.00

Piston Top Basket Press with Hydraulic Ram on frame with wheels. Very easy to use, with tilt frame for draining. *Size shown to right* is similar to a #50 basket press.

WE50 Piston, manual Hydraulic Press on wheels #50 20" x 26" $2550.00

WE50 #50 Piston Press

Water Bladder Press inflates with regular garden hose pressure, pressing the grapes against the stainless steel cage, while a lid retains the grapes. *(Not pictured.)*

WE55	#42	17"	23"	20	$1295.00
WE46	#54 with wheels	21"	28"	42	$2995.00

WE13 Roller Crusher

Crushers and Stemmer/Crushers

Crushers: Manual rollers crush by simply turning the flywheel supplied.

Dimensions of WE12 and 13 Bins: 21" x 32", WE30 and 35 Bins: 21" x 21"

WE12 Double roller grape crusher with paint finish $250.00
WE13 Double roller grape crusher with all stainless hopper *(Shown right.)* $325.00
WE35 Boxed roller grape crusher, stainless with removeable supports $300.00
WE30 Boxed APPLE crusher, stainless hopper, cutting knives, removeable supports $395.00

Stemmer/Crushers: Manual and electric models are available, both will process around one ton per hour. Stainless steel models come with a stainless stem grate and stainless hopper. *Dimensions of hopper are 16" x 30", except extended hopper with screw feed : 16" x 36".*

WE14 Manual, paint grade stemmer/crusher $475.00
WE15 Manual, stainless stemmer/crusher $595.00
WE16 Electric 110V, paint grade stemmer/crusher $750.00
WE17 Electric 110V, stainless steel stemmer/crusher $895.00
WE22 Electric 110V, paint grade stemmer/crusher with screw feed and extended hopper $850.00
WE18 Electric 110V, stainless stemmer/crusher with screw feed (SF) and extended hopper (EXH) $950.00
WE25 Electric 110V, **ALL** stainless stemmer/crusher, w/SF & EXH *(Shown middle right)* $1250.00
WE20 Support Stand w/ stainless chute $200.00

WE25 Stemmer/Crusher

WE28 3 Spout Bottle Filler

Large Storage Tanks

Variable Capacity Stainless Wine Tanks, come with a lid, pressure relief valve and drain.

WE43 100 Liter Stainless tank (26 g.) $375.00
WE40 200 Liter Stainless tank (52 g.) $500.00
WE42 300 Liter Stainless tank (79 g.) $600.00
WE44 400 Liter Stainless tank (106 g.) $675.00
WE45 500 Liter Stainless tank (132 g.) $900.00
WE41 600 Liter Stainless tank (158 g.) $1000.00
WE53 300 Liter Stainless tank /Bottom cone, 3 legs $1325.00

Fillers

WE19 Plastic Model 3 Spout Bottle Filler. $149.95
WE28 All Stainless 3 Spout Filler
Filler comes w/drip tray *(shown above)* $450.00
WE29 All Stainless 5 Spout Filler
Filler comes w/drip tray $575.00

Equipment is priced for pick up at the store. Call for a freight quote for delivery.

KITS AND JUICE

"Premium" Wine Equipment Kit

Complete with a ten gallon primary fermentor and lid, a six-gallon PET Plastic Bottle secondary fermentor, an air lock and stopper, 25 Campden tablets, a siphon assembly, a bottle filler, Mini-Floor Corker, 100 Corks, Country Wine Acid Testing Kit, Hydrometer and Test Jar, a Bottle Brush and the book *Home Winemaking Step By Step, Iverson*.

BNW01 ..... $224.95

*(Note: For **White Wine**, kit includes 5 gallon PET Plastic Bottle in place of the bucket and lid, please identify RED or WHITE WINE on order.)*

Pure Italian Juice Wine Kits

Mosto Italiano® kits are aseptically packaged in plastic pails, that also serve as the primary fermentor. 23 liter kits are a complete package of ingredients to make 6 gallons. Ready in three months.

C030 **Cabernet Sauvignon** (R) $114.95
C031 **Chardonnay** (W) $94.95
C032 **Sangiovese** (R) $109.95
C039 **Pinot Grigio** (W) $94.95
C034 **Shiraz** (R) $109.95
C035 **Zinfandel** (R) $104.95
C036 **Sauvignon Blanc** (W) $94.95

Canned Grape Concentrate

Choose your Varietal, 46 oz 68° Brix Dilute 2-1
(C002) **Chenin Blanc**, (C004) **Chablis**, (C006) **Burgundy** $12.95
(C003) **Cabernet Sauvignon**,(C005) **Muscat**, (C001) **Zinfandel**
(C008) **Chardonnay**, (C0007) **Petite Syrah** $18.95

Seedless Fruit Puree

Each can of fruit puree from Oregon is seedless, with all the goodness preserved in the processing, full of aroma and a deep rich taste and color. Use one can in five gallons of beer, two cans to flavor a mead or four cans to make wine.The classic wine recipe using four cans of puree, will yield 24 wine bottles of superb fruit wine. Finish it with the addition of a simple syrup just to smooth the flavor and intensify the berry taste. Reminds us of summer even in the dead of winter and tastes great for several years, if you can wait that long, but is ready to drink in three months. 49 oz. can.

FL44 **Raspberry Puree** $18.95
FL47 **Blackberry Puree** $18.95
FL46 **Apricot Puree** $18.95
FL48 **Cherry Puree** $14.95

FRUIT HANDLING

MS35 **Grape Picking Shears,** $10.95
MS16 **Grape Picking Knife,** Plastic handle $6.95
MS31 **Tote Bins for grapes,** Cross stacking, nesting tub Hold 30 lbs $18.95
QE36 **Grape Masher. (Cap punch tool) 24" long** $31.95

Mesh Pressing Bags:

PS32 **12" X 19"** $4.95
PS31 **14" X 17"** w/drawstring $5.95
PS16 **20" X 22"** $5.95
PS15 **24" X 20"** w/drawstring $10.95
PS20 **26" X 28"** w/drawstring $12.95

Stainless Single Mesh Sieve-Strainer

QE39 10 1/4" Diameter. $19.95

YEAST & BACTERIA

Dry WineYeasts

Choose your yeast strain from the information chart provided on page 11. Use one to two grams per gallon and see pages 4 and 6 for directions on how to use the yeast. (***Shelf life is 3-4 months)***

YEAST	10 g All $1.95	4 oz $18.95
Assmanshausen	WY38	WY37
Epernay 2	WY22	WY12
French Red	WY30	WY20
Prise de Mousse	WY23	WY13
Rhone #L2226	WY35	WY34
		$21.95
Beaujolais 71B	WY25	WY15
Brunello BM45	WY45	WY47
CSM	WY53	WY56
ICVD21	WY41	WY16
ICV D254	WY44	WY43
M2	WY50	WY49
RC212	WY55	WY57
RP-15	WY24	WY42
Steinberger	WY29	WY19
Uvaferm 43	WY28	WY18
VL-1	WY31	WY21

Malolactic Bacteria Cultures

QR38 **Acti-ML,** (Nutrient for MLF for 66 gal.) 50g. $5.95

WY32 **ML Culture**, ***Wyeast #4007*** *125 ml*. pack inoculates 5 gallons directly. Pack may also be expanded in juice for a second buildup of 5-7 days to treat up to 50 gallons.
With instructions. $7.95

WY51 **ML Culture,** ***Enoferm Alpha Strain***, 2.5 g. pack inoculates 66 gallons directly. With instructions $27.95

WY66 **ML Culture**, ***Enoferm Beta Strain***, 2.5 g. pack inoculates 66 gallons directly. With instructions $27.95

SUPPLIES & CONTAINERS

Note: Call or check the web for larger sizes of all acid, sugar, nutrient and preserving aids...

Acids

A17 **Ascorbic,** 1 oz. $4.50
A05 **Citric**, 2 oz. $1.50
A14 **Malic,** 2 oz. $1.95
A10 **Tartaric,** 2 oz. $2.95
A24 **Acid Blend,** Citric, Tartaric & Malic, 2 oz. $1.95

Sugar, Nutrients & Preserving Aids

AD15 **Corn Sugar,** 5 lbs $6.95
AD16 **Corn Sugar,** 10 lbs $11.95
QR04 **Pectic Enzyme,** 1 oz. $1.85
NEW QR61 **Lallzyme (R) EX Red Wine Enzyme** 10 g $5.95
NEW QR63 **Lallzyme (R) Cuvee Blanc White Wine Enzyme** 10 g $6.95
F15 **Wine Tannin,** 1/4 oz ....$.95
F16 **Wine Tannin,** 1 oz....$2.95
NEW QR65 **FT Rouge Soft -** Enological Tannin, 100 g $7.95
NEW QR67 **FT Blanc Soft -** Enological Tannin, 50 g $5.95
NEW QR69 **Tannin Riche,** for Red and White wine ...$21.95
QR11 **Yeast Nutrient,** Diammonium Phosphate**,** 2 oz. $1.95
QR33 **Autolyzed Yeast.** 2 oz. $2.95
QR16 **Yeast Hulls.** 2 oz. $3.95
QR06 **Fermaid K™** Yeast Food. Complete nutrient mix with trace minerals, use 1 oz. per 30 gallons. 3 oz. $3.95
QR38 **Acti-ML.**, Nutrient for MLF up to 66 gal. 50gr. $5.95
QR50 **Yeast Nutrient for Meads.** (Our special blend) Use 2 oz. per 5 gallons. 2 oz. $1.95
NEW QR72 **Opti-Red (R) Yeast Derivative Nutrient** 50 g $4.95
NEW QR74 **OptiMUM-White (R) Yeast Derivative Nutrient** 50 g $5.95
MS42 **Private Preserve™** Canned inert gas....$10.95
CS24 **Sodium Metabisulfite,** 4 oz. $2.95
CS20 **Potassium Metabisulfite,** 1 lb. $5.95
CS17 **Campden Tablets,** Pack of 25. ....$.95
CS16 **Campden Tablets,** Pack of 100. ....$2.95
CS33 **2 g IO Inodose Effervecent Tablets,** 3 pack $2.95
CS34 **5 g IO Inodose Effervecent Tablets,** 3 pack $3.25
FN18 **Potassium Sorbate,** 1/2 oz....$ .99
FN35 **Wine Conditioner/Stabilizer,** 500 ml. $6.95

Fermentation and Storage Containers

Note: All Plastic take a #10 Stopper, Glass takes a #6.5 Stopper

GL55 **3 Gallon Plastic Better Bottle™** $22.95
GL45 **5 Gallon Plastic Better Bottle™** $27.95
GL13 **6 Gallon Plastic Better Bottle™** $29.95
GL58 **5 Gallon PET Plastic Bottle** $25.95
GL59 **6 Gallon PET Plastic Bottle** $27.95
GL02 **3 Gallon Glass Carboy** $29.95
GL01 **5 Gallon Glass Carboy** $40.95
GL40 **6 Gallon Glass Carboy** $45.95
GL04 **6.5 Gallon Glass Carboy** $48.95
P01 **6.6 Gallon Plastic Bucket** with Wire Bale Handle, Graduation marks in half gallons $11.95
P02 **Lid for 6.6 Gallon Bucket** $2.95
P17 **Poly Drum Liner**, 6 mil, 60 gal....$5.95
P04 **10 Gallon Heavy-Duty Plastic Bucket** with molded handles. $20.95
P05 **10 Gallon Lid** $6.95
20, 32 AND 44 GALLON SIZES and lids are available at the store.

Drilled Rubber Stoppers

#	Code	Top	Bottom	Price
2	FST09	13/16"	5/8"	$ .65
6	FST12	1 1/16"	29/32"	$ .95
6.5	FST13	1 11/32"	1 1/16"	$ 1.09
7	FST14	1 7/16"	1 3/16"	$ 1.29
8	FST15	1 5/8"	1 5/16"	$ 1.50
8.5	FST16	1 11/16"	1 7/16"	$ 1.55
9	FST17	1 3/4"	1 15/32"	$ 1.65
10	FST19	1 31/32"	1 5/8"	$ 2.15
10.5	FST20	2 5/64"	1 3/4"	$ 2.45
11	FST21	2 13/64"	1 7/8"	$ 2.69
11.5	FST22	2 15/32"	2"	$ 4.25
12	FST23	2 1/2"	2 1/8"	$ 4.50
13	FST24	2 11/16"	2 9/32"	$ 4.95

Most sizes are available solid, at the same price.

Bulk Wine Handling

QE34 **Orange Carboy Handle,** 3, 5 and 6 gallon size $7.95
QE47 **Blue Carboy Handle,** 6.5 gallon size $7.95
MS02 **Carboy Carrier,** Nylon Web $12.95
P16 **10 Quart Plastic Pail**, with Pour out lip and Bail Handle. $9.95
P18 **14 Quart Plastic Pail**, with Pour out lip and Bail Handle. $16.95
QE37 **Barrel Funnel,** 16" $19.95
QE24 **Carboy Funnel,** 8" Anti-Splash $10.95
QE23 **Funnel,** 10" $9.95
QE22 **Medium,** 6" Bottle Funnel $4.95
QE21 **Small,** 4" Bottle Funnel....$2.95

Air Locks and Breather Bungs

FST04 **Three Piece Fermentation Lock** $1.29
FST05 **Red Top-** One Piece Fermentation Lock $1.29
FST47 **Breather style Silicone** - fits outside all carboys $8.95
FST41 **Breather #11 Silicone** - 2", Dalco Dual™ $7.95
FST510**Breather #10, Silicone-** fits PET plastic $6.95
FST49 **Breather #9 Silicone** - 1.5" Dalco Dual™ $7.95
FST57 **Breather #7 Silicone-** fits glass carboys $4.95

Oak Additions

B42 **Liquid Oak Essence,** Extracted from pure Dark French Oak $5.95

Innerstave™

Oak Chips, 1 lb. bag

B46 **American Medium** $5.95
B24 **French Medium** $7.95
B25 **French Dark** $7.95

NEW Oak Cubes 8 oz. (.5x.5x.5")

B44 **French Medium Plus** (Dark), B32 **French Medium** $12.95

Oakboy™ Carboy Staves (5 pack)

B80 **American Medium**..... $17.95
B82 **American Dark** $18.95
B81 **French Medium** $19.95
B83 **French Dark** $20.95

Chain-O-Oak™ Staves (Tank or Barrel insert)

(30% surface of new oak in a 60 gallon barrel.)

B78 **American Medium** $45.95, B79 **American Dark** $49.95

B74 **French Medium** $49.95 or B75 **French Dark**. $54.95

Oak Barrels

Small American Oak Barrels:

B01 **American Oak, 1 gallon** *(SCT)*..... $114.95
B02 **American Oak, 2 gallon** *(SCT)*..... $124.95
B03 **American Oak, 3 gallon** *(SCT)*..... $159.95
B04 **American Oak, 5 gallon** *(SCT)*..... $189.95

Vinegar Barrels are paraffin/wax lined (P):

B09 **American Oak, 1 gallon** *(P)* $109.95
B10 **American Oak, 2 gallon** *(P)* $114.95
B11 **American Oak, 3 gallon** *(P)* $129.95
B12 **American Oak, 5 gallon** *(P)* $139.95

Charred Oak Barrels for Spirits:

B43 **American Oak, 1 gallon** *(SCC)* $114.95
B49 **American Oak, 3 gallon** *(SCC)* $139.95
B08 **American Oak, 5 gallon** *(SCC)* $189.95

Barrel Mill Oak Barrels (Thick Staves--medium toast)

B35 **American Oak, 5 gallon** $229.95
B36 **American Oak, 10 gallon** $289.95
B34 **American Oak, 15 gallon** $329.95

World Cooperage Oak Barrel (Air Dried)

B47 **American Oak, 26 gallon**, medium toast $359.00

Solid Barrel Bungs

FST48 **Silicone Barrel Bung Solid #9 (R Size)** $6.95
FST40 **Silicone Barrel Bung - Joined Size 44 x 55** mm.. $6.95

Barrel Spigots

Wood Spigots:

SP31 **2.25"** $3.95
SP32 **3"** $4.95
SP35 **8"** $10.95
SP38 **Wood Spigot NADI #1**
(8" w/ wood wedge to tighten) $16.95
SP39 **Wood Spigot NADI #2**
(9" w/ wood wedge to tighten) $18.95

RACKING AND PUMPING

Hose is sold by the **FOOT**

HS03 **5/16" i.d. hose** ..... $ .59
HS04 **3/8" i.d. hose** ..... $ .59
HS14 **7/16" i.d. hose**. ..... $ .79
HS05 **1/2" i.d. hose** ..... $ .89
HS06 **1/2" i.d. thick wall hose** ..... $ 1.09
HS07 **5/8" i.d. thick wall hose** $1.29
QE11 **3/8" Racking Tube** $3.95
FST02 **Hose Shutoff Clamp for 3/8" hose** $1.50
QE33 **1/2" Racking Tube** $4.95
FST03 **Hose Shutoff Clamp for 1/2" hose** $2.95

Auto Siphon Starter, Racking tube inside a cylinder creates a vacuum as it is pulled. Plunge until the racking tube and siphon hose are filled. Order hose to match separately.

QE42 **5/16" or 3/8"** $13.95
QE43 **7/16" or 1/2"** $18.95
PS26 **Transfer Pump**, s/s head, phenolic impellers..... $184.95
F01 **Filter/Strainer** for Pumps (Use with 1/2" hose) $20.95
PS36 **Procon Brass Pump**, 4 GPM, 1/4 HP $345.00
PS35 **Procon Stainless Pump**, 4 GPM, 1/4 HP $459.00
FX06 **Pump hose barb fitting**, 1/2" x 1/2" barb. Brass .. $2.95
PB05 **Pump hose barb fitting**, 1/2" x 1/2" barb.S/S $10.95

Filters and Fining Agents

FN06 **Sparkolloid™,** 1 oz. ..... $ 1.95
FN32 **Bentonite,** 2 oz. ..... $ .95
FN07 **Isinglass,** 1 oz.. ..... $ 5.95
FN03 **Fining Gelatin,** 75 bloom, grade B, 1 oz. ..... $ 1.95
FN16 **Tannin,** 1/4 oz. ..... $ .95
TE24 **Copper Sulfate Solution (1%),** 4 oz. ..... $ 4.00
FN22 **Polyclar VT (PVPP)** (With Instructions) 1 oz. ..... $ 1.95
QR28 **Calcium Carbonate** (With Instructions) 1 oz. ..... $ .69
FN39 **Potassium Bicarbonate** (With Instructions) 4 oz. ..... $ 4.95

F05 **Buon Vino Super Jet Filter,** Plate & frame filter includes pump and will process 30 to 45 gallons per set of pads. Change pads and continue. $495.00

Pads for Super Jet Buon Vino (Set of Three):

F09 **8 Micron Coarse** $4.95
F22 **2 Micron Medium**..... ..... $4.95
F21 **0.5 Micron Sterile,** Comes w/backing paper $5.95
F23 **25 Backing Papers** for Filter Pads $4.95
F03 **10" Cartridge Filter Housing**, Clear, poly housing, Use wth 10"filters..... $44.95

10" Filter Cartridges:

F10 **3 Micron Coarse** $12.95
F11 **1 Micron Fine** $12.95
F12 **.5 Micron Sterile** $14.95

Hose Barb for Filter Housing *Need two. Specify:*

PS02 Fits **3/8" hose** $1.29
PS03 Fits **1/2" hose** $1.99

FINAL STEPS

Note: **Call or check the web for larger sizes of all 1lb cleaners and metabisulfite.**

Cleaning and Sanitizing

CS12 **Soda Ash**, Barrel cleaner 1 lb. $1.95
CS29 **Sodium Percarbonate**, All purpose cleaner 1 lb. .. $4.95
CS26 **TDC™ Glass Cleaner,** 4 oz $3.50
CS31 **TDC™ Glass Cleaner,** 1 Liter. $13.95
CS02 **BTF™ Sanitizer,** 4 oz $4.50
CS03 **BTF™ Sanitizer,** 32 oz $15.95
QE29 **Bottle Brush,** $4.95
QE30 **Carboy Brush** , ... $5.95
QE31 **Long Handled Nylon Scrub Brush,** $14.95
QE45 **Bottle Washer -The Blast** $11.95
QE09 **90 Bottle Draining Tree** $39.95
QE44 **Carboy Draining Stand** $8.95

Barrel Maintenance

CS24 **Sodium Metabisulfite**, 4 oz. $2.95
CS20 **Potassium Metabisulfite**, 1 lb. $5.95
B39 **Sulfur Strips,** 2 strips ..... $ .59
B38 **Sulfur Strips** Bundle of 70 strips $18.95
B40 **Sulfur Disks aprox. 15** (5 g) $4.50
B65 **Sulfur Disk Holder**, Stainless Steel $14.95
MS06 **Mildewcide**, Barrel Coating, 16 oz. $9.95
B13 **Hoop Nails**, Pack of 20.. ..... $1.25
B14 **Spiles for Barrels** (Fills holes) Pack of 10 ..... $1.75

Bottles (note: actual shipping rates will apply)

GL18 **Claret 750 ml.** Green Push-Up 12/cs $10.95
GL05 **Claret 750 ml.** Flint Push-Up 12/cs. $11.95
GL68 **Burgundy 750ml.** Antique Green 12/cs.. ..... $11.95
GL16 **Claret 375ml.** Flint 12/cs
(also available in green GL03) $16.95
GL63 **Claret 375ml.** Flint 12/cs Screw Top. $16.95

Corkers and Cappers

BE01 **Double Lever Italian Corker** $36.95
BE19 **Mini-Floor Corker,** *Nylon Jaws* $74.95
BE21 **Heavy Duty Floor Corker,** *Chrome Jaws* $179.95
BE07 **Super "M" Crown Capper** $42.95
BE05 **Emily Crown Capper** $18.95

Bottle Fillers

QE17 **Bottle Filler,** for 5/16"or 3/8" hose $4.95
QE02 **Bottle Filler,** with spring for 5/16" or 3/8" hose. ... $4.95
QE20 **Bottle Filler,** for 7/16" or 1/2" hose $5.95
WE19 **Plastic Model 3 Spout Bottle Filler,** $149.95
WE28 **Stainless Steel 3 Spout Bottle Filler,**
Includes drain tray $450.00
WE29 **Stainless Steel 5 Spout Bottle Filler,**
Includes drain tray $575.00

Closures

WC11 **1 3/4"Chamfered Corks,** 25 pack $9.95
WC06 **1 3/4"Chamfered Corks,** 100 pack $38.95
WC14 **1 3/4" Twin Disk Corks,** 100 pack $24.95
WC07 **1 3/4" All Natural Corks,** 100 pack $36.95
WC13B **1 3/4" Twin Disk Corks,** 1000 pack $215.00
WC02B **1 3/4" All Natural Cork,** 1000 pack $325.00
TC20 **Plastic Champagne Stopper** ..... $ .12
TC21 **Champagne Wire** ..... $ .10
TC18 **28 mm. Black Top Bar Top Cork**.. ..... $ .29
TC28 **28 mm. Black Top Bar Top Cork,** 100 pack.. ... $ 26.95
S01 **28 mm. Metal Screw Cap**.. ..... $ .20
S02 **38 mm. Metal Screw Cap** ..... $ .25
S03 **28 mm. Plastic Polyseal Cap** ..... $ .45
S04 **38 mm. Plastic Polyseal Cap** ..... $ .90
BE10 **Plain Crown Caps** 1 gross, 144 caps $3.95

Bottle Design

Bottle Seal, Wax Available in 8 colors $12.95
SL26 *Black*, SL27 *Burgundy*, SL28 *Gold*, SL29 *Silver*, SL31 *Blue*, SL30 *Red*, SL32 *Green*, SL41 *White*
Heat Shrink Plastic Sleeves, Apply to bottle neck with boiling water (212°F.) or heat gun. *Specify*: SL18 *Silver,* SL33 *Green,* SL20 *Gold*, SL19 *Burgundy,* or SL09 *Blue and SL49 Black. Also for Euro neck Burgundy bottles Oversize Sleeves are* SL01 *Maroon,* SL02 *White,* SL03 *Black*.
Heat shrink by the Dozen ..... $ 1.19
Oversize heat shink by the Dozen ..... $ 1.49
Gum-Backed Label Making Paper. L38--*White* , L39--*Blue* or L40--*Green*. 18 Sheets, 8 1/2 x 11, solid sheet $6.95
L46. **Removable White Matte Labels**, Laser & Inkjet, 4" X 5", 4 per sheet, 12 Sheets, ... $4.95
L47. **Standard white matte label**, 4 " x 3.3" 6 per sheet 10 sheets $2.95
MS15 **Label Glue,** 16 oz. $6.95
MS24 **Iceproof Label Glue,** 32 oz. $12.95
MS26 **Manual Label Gluer,** Glue Pot. $369.95

Finishing Supplies

MS42 **Private Preserve™,** nitrogen gas blend in a can .$10.95
FN35 **Wine Conditioner**, 500 mL $6.95
FN18 **Potassium Sorbate,** 1/2 oz. treats 10 gallons. Stir into sweetened wine and bottle. ..... $.99
B42 **Liquid Oak Essence,** extracted from pure Dark French Oak $5.95
FN39 **Potassium Bicarbonate,** lowers acidity in wine/must.. 4 oz $4.95

Miscellaneous

KEG58 **Food Grade Lubricant,** 4 oz. $4.50
MS03 **Silicone Spray Lubricant,** 10 oz. $9.95
MS09 **Gondola Enamel,** Food grade paint, 16 oz. $10.95
MS43 **Wine Away™** 12 oz. Spray bottle $9.95

WINE LABORATORY

Sugar & Alcohol Testing

TE40 **Economy Hydrometer** has Brix, Specific Gravity, and Potential Alcohol scales, 9" $10.95

TE42 **Deluxe Hydrometer 3 scale with Thermometer** Use with the tall test jar below, 11" $16.95

Precision Hydrometer (Brix only)

TE43 **-5° to +5°** $21.95

TE39 **Hydrometer Proof and Traille** $10.95

TE65 **"Santa Rosa" Residual Sugar Kit.** Tests the completion of fermentation $26.95

TE23 **Refractometer**, 0-32° Brix, Automatic Temperature Compensation, boxed w/padded carrying case $84.95

TE32 **20° Brix Calibration Solution,** 2 oz. $3.00

TE13 **Vinometer,** Estimates alcohol in dry wine $7.95

Sulfite, Acid, & pH Testing Kits

TE02 **Titrets® Free SO_2 Test Kit.** Pack of 10 Use for white wine only $18.95

NEW TE102 **Economy Aeration-Oxidation Free SO2 Test Kit** $124.95

TE26 **Country Wines Acid Test Kit** $8.95

TE29 **Sodium Hydroxide Refill** (Neutralizer) (for TE26) 4 oz., 0.1 normal $4.95

TE58 **Phenolphthalein Refill** (Indicator) (for TE26) 3 dram $1.95

TE30 **Acidometer, Precision Acid Test Kit** $24.95

TE66 **Blue Hydroxide Refill** (100 ml. for TE30). $8.95

NEW TE103 **TA Titration Kit- INDICATOR Method** Laboratory grade kit employing phenolphthalein indicator and a Class A glass buret with a Teflon stopcock. $109.95

NEW TE104 **TA Titration Kit- pH meter method,** Laboratory grade kit employing a bench-top digital pH meter with magnetic stirrer and a Class A glass buret with a Teflon stopcock. $385.95

TE74 **Hanna pH Meter** Digital, battery operated Hanna 98107 - Manual 2 point calibration, .1 Accuracy at 68°F (20°C) $59.95

TE73 **Waterproof pH Tester** Digital, battery operated, accuracy to 0.01 pH. Automatic temperature compensated, double junction electrode can be replaced. $99.95

TE35 **Replacement Electrode for Waterproof pH Testr20** (new model) $64.95

NEW TE101 **Hanna HI 208 bench-top pH meter** with built-in magnetic stirrer, two Teflon-coated stir bars, BNC combination electode with temperature sensor. Automatic two- or three- point calibration with stability indicator. Suitable for pH and TA measurement on wine samples. $274.95

TE72 **pH Buffer Capsules** pH 4.0. and 7.0 One of each capsule, to dissolve in 100ml. distilled water to calibrate your meter. $2.50

TE91 **Complete pH Buffer Capsule Kit** pH 4.0. and 7.0 For mixing and storing pH buffer solutions. $4.95

ML Testing

TE20 **Malolactic Chromatography Kit**, 6 papers, 4 oz Solvent, 100 pipets, 3 Acid Standards, funnel and Instructions $39.95

TE17 **Replacement Solvent**, 4 oz. $10.95

TE22 **Replacement Paper, 3 Sheets** $4.95

TE18 **Replacement Acid Standards- Set of 3 (Lactic, Malic, Tartaric)** $8.95

TE19 **Replacement Capillary Pipets,** 100 pack $8.95

Labware

Regular Test Jar for 10" Hydrometer.

TE55 **Plastic,** 10" $4.95

TE08 **100 ml. Graduated Cylinder** *Glass* $12.95

TE46 **100 ml. Graduated Cylinder** *Plastic* $16.95

TE111 **250 ml. Graduated Cylinder** *Glass* $14.95

Tall Test Jar for 11" Hydrometer

TE56 **Plastic** 1 1/2" x 14" $5.95

TE07 **1 ml. Pipet,** Each. ..... $ .95

TE62 **10 ml. Pipet,** Pack of 20 ..... $17.95

TE36 **10 ml. Pipet,** Each. $1.25

TE86 **100 ml. Graduated Beaker** *Polypropylene* ..... $.95

TE87 **400 ml. Graduated Beaker** *Polypropylene* $1.95

TE92 **1000 ml. Graduated Beaker** *Polypropylene* $2.95

TE83 **1000 ml.** *Polypropylene* **Beaker** *w/handle* $10.95

TE84 **2000 ml.** *Polypropylene* **Beaker** *w/handle* $12.95

TE85 **3000 ml.** *Polypropylene* **Beaker** *w/handle* $18.95

TE10 **500 ml.** *Borosilicate* **Erlenmeyer Flask.** $11.95

TE09 **1000 ml.** *Borosilicate* **Erlenmeyer Flask.** $14.95

TE127 **2000 ml.** *Borosilicate* **Erlenmeyer Flask.** $24.95

Thermometers

TE53 **Instant Read Dial Top Thermometer,** 0-220°F., Recalibratable, Stainless, 1" Dial x 5" Stem $7.95

TE50 **Wine Thermometer,** 0-220°F., 1.75" Dial x 8" Stem, with pan clip, recalibratable comes with pan clip, Stainless $24.95

TE90 **Must or Juice Thermometer,** 2" Dial x 12" Stem, all the same as TE50 but larger.. ..... $34.95

TE37 **Floating Glass Thermometer,** 8"(40-210°) F. and 0-100°C). $8.95

TE81 **Fermometer,** Monitors temperature from 36 to 78°F., stick to tanks or carboys reads surface temperature $2.95

Wine Thieves

TE49 **Wine Thief,** Plastic, One piece. $5.95

TE48 **Wine Thief,** Plastic, Assembled of 3 pcs $7.95

TE51 **Wine Thief,** Glass 12" $12.95

TE77 **Glass Straight Wine Thief**, 18" $49.95

TE05 **Glass Angled D- RingWine Thief,** 18" $59.95

Digital Scale

TE01 **Escali™** 1-5000 grams, ounces to 16 and pounds 1 to 11, perfect for winemaking additives $42.95

WINEMAKING BOOKS AND VIDEO

BK140 ***Home Winemaking Step by Step*** Iverson..... $17.95
BK20 ***Micro Vinification*** Dharmadhikari and Wilker..... $46.95
BK12 ***Techniques in Home Winemaking*** Pambianchi ..... $ 21.95
BK40 ***Modern Winemaking*** Jackisch $44.95
BK44 ***Knowing & Making Wine***, Peynaud..... $110.00
BK54 ***How and Why to Build a Wine Cellar***, Gold..... $20.00
MG11 ***Practical Winery and Vineyard Magazine***, current issue $10.00
BK109 ***Making Wine at Home DVD,*** Cutler, 1 hour and 15 min $25.95
MG13 ***WineMaker Magazine*** current issue $4.99
BK142 ***Winemaker's Recipe Handbook*** Massaccesi ..... $ 4.95

BK09 ***The Wine Defect Wheel*** diagnostic tool..... $22.95

GRAPE GROWING, CIDER, CHEESE, VINEGAR, MEADMAKING

Grapes

BK80 ***Great Grapes,*** Proulx $3.95
BK129 ***Vineyard Simple,*** Powers $24.95
BK67 ***The Backyard Vintner,*** Law $19.95

Cider

BK70 ***Cider, Making, Using and Enjoying***, Proulx & Nichols $14.95
5788 **NEW** ***Craft Cider Making,*** Lea $15.95
BK79 ***Making the Best Apple Cider*** $3.95

Mead

BK77 ***Making Mead***, Morse $16.95
BK05 ***The Compleat Meadmaker***, Schramm $19.95

Other Hobbies

CH73 ***The Cheesemaker's Manual***, Morris $49.95
BK32 ***The Joy of Cheesemaking,*** Druart and Farnham..$14.95
CH74 ***Making Artisan Cheese,*** Smith $21.95
NEW *CH98* ***Artisan Cheesemaking at Home***, *Karlin $29.95*
BK166 ***The Home Creamery***, Farrell $16.95
BK100 ***American Farmstead Cheese***, Kindstedt $40.00
BK01 ***Brewing Quality Beers,*** Burch $7.95
BK84 ***Making Vinegar at Home***, Romanowski $4.95
BK03 ***Homemade Vinegar,*** Watkins $7.95
BK36 ***The Compleat Distiller***, Nixon & McCaw $25.00
BK76 ***Home Sausage Making,*** Reavis $16.95

ORDERING

Retail hours are 10:00 to 5:30 Tuesday through Friday and Saturday 10:00 to 5:00.

We are also open on Mondays from August through December. We're always ready to answer questions for our customers.

Ordering Instructions:
For the most personal service, call our TOLL FREE ORDER LINE, (800) 544-1867, which may be used with your Visa, Mastercard, American Express, or Discover card.

To place your order by check, please note the following, if you live in California, add 8.5% sales tax on non-food items. **Food items are:** concentrates, sugars, purees, and flavorings. All items shipped to points outside California are not taxable.

Fastest Shipping in the Business:

We normally ship UPS Ground service the same day the order is received, if received by 1 pm. Ground service to Zones 2 and 3 receive one day service. Zones 4 and 5 receive 2 to 3 day service. Customers in Zones 6, 7 and 8 will normally receive their merchandise in 4 to 5 working days.

For faster service to Zones 5-8, and for perishables such as liquid yeast, we recommend UPS Standard overnight Air service, or UPS 2 DAY Air service.

Add $6.00 for standard shipping to California, Nevada, Oregon and Washington. All other states and out of the country will pay actual shipping.

Customers in Alaska and Hawaii please take note that *priority mail* service from the Post Office is recommended. You may also ship UPS 1st day air.

ABOUT US

The Beverage People is proud to operate both a retail and on-line-order supply firm for 31 years at the same location in the heart of the Sonoma County Wine Country.

Our staff wishes you the very best with your new hobby and look forward to hearing from you. Mention that you are a new customer, so we may give you a free article from a past newsletter to help answer your fermentation questions.

The Beverage People News is a publication of **The Beverage People**, America's most respected homebrewing and winemaking supply company. Unless otherwise noted, all material is copyright **©2011 The Beverage People.**

The Beverage People
840 Piner Rd. #14
Santa Rosa, CA 95403

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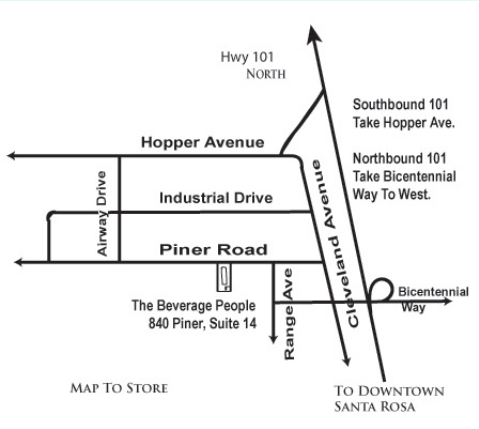

Our Hours: January through July :
T-F 10 - 5:30, and Saturday 10-5
Also Open on Mondays- August through December

Rental Equipment

CRUSHER

Apple Mill, Grinder and Press, motorized	$45.00
Grape Crusher, manual	$20.00
Grape Destemmer/Crusher, manual	$45.00

PRESSES

#30 7 gallon Basket	$25.00
#35 12 gallon Basket	$35.00
#45 25 gallon Basket	$45.00

FILTERS/PUMPS

Transfer Pump **Brass**	$10.00
Transfer Pump **Stainless**	$20.00
Buon Vino Plate Filter	$30.00

BOTTLING

3-Spout Filler	$10.00
Wine Corker	$10.00
Glue Labeller	$10.00

Rentals are for 24 hrs. from noon to noon, reservations accepted up to 7 days in advance, and we have a 24 hour cancelation policy. Call 544-2520 to make your reservation.

Fall Winemaking Class

Phone *The Beverage People* at 707 544-2520 to reserve a place in our beginning winemaking class. There is a $20.00 fee. You will get your questions answered, and gain information about equipment & processes. Space is limited call today. Class will meet here at 2:00, Saturday, August 27th.

2011
Amateur Wine Competition
Harvest Fair of Sonoma County

Deadline for entries is usually the last week of August.
Great opportunity for local winemakers to judge.
Contact Bob Benett, 433-4574
to be included on a panel.
Note, as this is a local event,
please deliver entries directly to fair.

BUILD YOUR DREAM LAB...

Get your hands on our latest laboratory testing supplies... We now sell an aeration oxidation kit and titration kits for pH and Total Acid!
see pg. 22

Got Grapes?

Our grape listing book is a resource for both the winemaker and the grower. Local grape growers can list their grapes for sale. Winemakers can source their fruit by coming in to the shop and taking a look at the listings. If you would like to place a listing, please send us a list of grapes available, pricing, and any other information about your grapes you would like to include. Don't forget to provide your name, address and phone.

Happy 2011 Harvesting!

Follow us on facebook, we can share our fermentation stories! If you would like to get current promotional news, subscribe to our e-mail group. Both of these links can be found on our website's homepage. thebeveragepeople.com