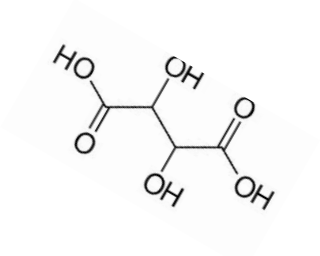
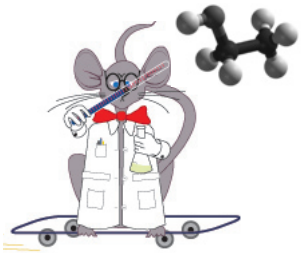


THE BEVERAGE PEOPLE
2009 Summer News and Wine Catalog



WINE CHEM 101 Part B

By Bob Peak

In last year's catalog and newsletter, we began a discussion of the chemistry of wine and winemaking—Wine Chem 101, Part A—with details about conversion of sugars to alcohol. (That article is still available at thebeveragepeople.com). At the end of the article, I credited wine acids for the "zing" in wine flavor that lifts it above ordinary beverages. So, in this issue, I will tackle that part of Wine Chem: Acid. The two major organic acid components of grapes and grape juice are tartaric and malic acids, usually starting at about a 50-50 ratio. Together, they create the low pH conditions that help make wine a stable beverage and provide the pleasant tartness we all associate with it. The combined range of these acids in fresh grape juice will usually fall between 3 and 15 grams per liter (or 0.3 to 1.5%). Although this wide range of acid levels—measured as TA or Titratable Acidity—can be seen around the world, most North Coast grape juice comes in between 0.4 and 0.7% TA, with about 0.65% preferred. There is also a trace of citric acid in grapes, but it is not a significant contributor to TA. Together, these acids are the "fixed" acids of grape juice, joined in some wines by lactic acid from malolactic fermentation. The term "fixed" is used to distinguish from the spoilage acids of wine, the volatile acids. Those acids—mostly acetic acid—are the products of vinegar fermentation and will introduce unpleasant aromas to wine at very low levels.

Although malic and tartaric acids begin at near equal levels, it is tartaric that dominates the acid flavor profile in most wines. Like the other fixed acids, it belongs to a chemical class called the carboxylic acids. The structure can be represented as: HOOC-HCOH-HOCH-COOH

Those "H's" on each end of the molecule identify this particular acid as a dicarboxylic acid—there are two active "acid" locations (protons) on every molecule. That is twice as much available acid activity as in a like amount of a

Chem. 101 cont. pg 2

TIPPING THE BALANCE, SOURCING THE BEST FRUIT

By Robyn Rosemon

In order to make good wine, a winemaker must start with ripe, sound fruit. It may seem simple but let's face it-- this hobby doesn't always lend itself to ease. And since making wine doesn't qualify one as a vineyard expert, my personal experience talking here, I thought an article on how to source the best fruit would be both timely and useful for winemaking enthusiasts. Since Bob owns and operates a 1/3 acre vineyard I went to him for some answers. He was very cooperative and helped me come up with many techniques on sourcing fruit.

There are two main categories by which we will organize these techniques-- theoretical research and the ground truth. We picked up these tips and techniques over many years of winemaking. You don't have to implement all of these tips in order to be successful. In fact we have never seen a situation where all of these have applied. Rather think of this as a buffet of ideas that you can apply if the situation allows.

Research is essential in starting the process of sourcing your fruit. You will want to start out by picking a varietal of most interest to you. You can learn about appellation areas and the varieties that grow best in them by taking classes at the JC, talking with winery staff in

tasting rooms, searching online, or by heading to the Wine Library in Healdsburg. Once you have a good idea of what kind of fruit and what location you want, the next step is to come to the store and look through our grape-listing book. Growers post their grapes for sale in a binder we keep behind the counter. They usually include pricing, quantity, area etc. the basic information needed to get you interested. ***The better you get to know the grower and his/her vineyard, the better decisions you can make in your winemaking***. As you talk it over, the grower may be able to tell you if they make wine or sell fruit to a commercial winery. Sometimes they can even let you taste a wine or point out a commercial wine for you to purchase. If wines from the vineyard have won any awards, the grower will be eager to tell you about them. A vineyard that produces award-winning wines is also a very good indicator it is well maintained.

Now we come to the ground truth as we walk in to the vineyard! The grower is the most qualified person to tell you about the vineyard.

Tipping cont. pg 2

Tipping the Balance continued...

They have the details regarding their pruning techniques, crop load, trellising style and so on. If you have a hobby vineyard you can apply these evaluation techniques to your own grapes. There are 3 phases to this part of the research: observation, examination, and tasting. ***As Bob explains it… "a vineyard must be in total balance."***

First, observe the overall condition of the vineyard. A healthy vineyard will have vines with green leaves and fall colored leaves at harvesting time. The leaves should not be completely brown or falling off the vines. This is sign that the vines are shutting down and you should avoid these vineyards unless you're making a late harvest wine. You will want to pay close attention to vineyards with obvious signs of distress, shriveling grapes, or lots of moldy fruit.

Second, look for uniform grape maturity. Make sure you don't get grapes from a vineyard that has been over-cropped. This can lead to excessive vegetal characters and a lack of fruitiness. An over-cropped vineyard will have uneven ripening in the fruit and a lack of maturity in the grapes even if the sugar indicates maturity. Uneven ripening can also come from frost. If this is the case you can still make good wine you just need to change the way you pick and expect a lower yield.

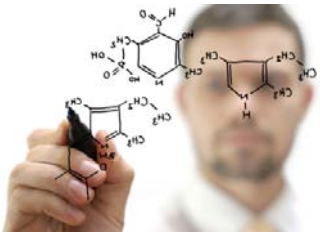
As many of you remember many vineyards suffered from major frost damage in 2008. Bob lost 40% of his crop, compared to the previous year, due to lower fruit set due to frost and picking strategies. When I helped him pick this past harvest he told me to leave behind grapes that didn't look right; raisins or still green. He also stressed the importance of leaving behind clusters high in the canopy (this is 2nd crop).

All of this grape assessment and cluster selection will pay off. ***Bob recently received a gold and best of class for his 2008 Chardonnay at the Sonoma Marin Fair!*** When you are buying your grapes talk over these types of picking strategies with the vineyard manager. It is much more difficult to sort them once they are in bins. Bob says he learned this picking strategy from Grady Wann of Quivira Vineyards. Grady always says, "If you wouldn't put it in your mouth, don't put it in my wine."

Finally we come to the best part of all of this research. Taste the grapes! They should taste like the varietal you expect. You can even chew the skin to make sure it isn't too tannic or vegetal. Also, open up the grape. If the seed has some browning and is hard, the grape is mature. Of course, wine grapes at proper maturity taste very very sweet.

The bottom line is, making wine is an investment of your time and money and growers want to make you happy. So remember anyone can make ordinary wine but you can only make great wine if you start with great grapes. Combining top quality grapes with a bit of knowledge and skill, the balance is tipped toward great wine, and winemaking becomes an easy process.

WINE CHEM CONTINUED



monocarboxylic acid. Like all the wine acids, tartaric is considered "weak" chemically. It has a native dissociation constant or natural pH level of 4.3 for the first proton and 3.0 for the second one. For an acid, the dissociation constant is written as pKa—the negative logarithm (p) of the constant (K) for dissociation of the acid (a).

Tartaric acid passes through fermentation and aging mostly unchanged. The main exception is cold stabilization. That is a process by which wine during aging is allowed—or induced—to get very cold (near freezing). The presence of much higher alcohol in wine, as compared with juice, reduces the solubility of tartaric acid. The tartaric acid combines with potassium that is naturally present in the wine, cold temperatures further drive down that solubility, and crystals of potassium bitartrate (KHT) appear on the interior surfaces of the carboy, tank, or barrel. If your wine is too tart when you make it, you can utilize this process to remove some of the tartaric acid and lower the overall acidity, mellowing the flavor. You may occasionally find a commercial wine that has not been adequately cold stabilized. In white wines, after chilling, it may look like there are crystals of glass on the bottom of the bottle. In reds, the crystals usually stick to the cork and are dyed red by the wine. In either case, potassium bitartrate is non-toxic and harmless, although it feels a little gritty on the tongue if you accidentally drink the dregs of the last glass from the bottle!

The other large acid component of grape juice—malic acid—is much more reactive than tartaric during winemaking. Like tartaric, it is a dicarboxylic acid, this time with pKa's of 5.1 and 3.4. These higher numbers indicate that malic is an even weaker acid than tartaric. Interestingly, though, to human taste malic acid is much sharper than tartaric. If you have teenage children (or have recently been a teenager), you may be aware of Warheads candies or Jones Green Apple soda. Both producers use malic acid for extremely sour food-grade tastes. In nature, malic is the acid of apples and gets its name from malus, the genus name for apple trees.

In most whites and rosés, the malic acid proceeds unchanged through fermentation and is present in the crisp "appley" flavor you sometimes get in these wines. With malic acid accounting for about half of the 0.4 to 0.7% TA, we can express that 0.2 to 0.35% instead as 2,000 to 3,500 milligrams per liter (mg/L) or ppm (parts per million). In wine styles other than these crisp ones, those malic acid levels would taste unpleasantly sour.

WINE CHEM CONT. pg 3

Prevent Oxidation!

Last year's Chenin Blanc project reminded us how important it is to prevent oxidation of your wine. White wine is particularly vulnerable to oxygen, with a tendency to turn brown during aging. Excluding air is the first step—top up all containers and minimize splashing when racking. Just as important, though, is proper use of sulfur dioxide—also known as SO_2 or sulfite—throughout the aging period for white wines, red wines, or rosés. Check to the right for some tips on a good sulfite program.

TIPS for maintaining proper levels of free SO_2

- **As a rule of thumb your wine loses 1/2 ppm everyday.**
- **Add potassium or sodium metabisulfie at about 30 ppm every 6-8 weeks.**
- **Use our reflectoquant meter to verify your SO_2 levels particulary after malolactic fermentation and at each racking.**
  See page 8 for reflectoquant information.
- **If you haven't added any sulfite for awhile and you want to bring in a sample to test on the reflelctoquant meter, make an addition first before you come in. That way you might not have to test twice.**
- **Don't forget to make one last addition at bottling. Wines may lose as much as 10 ppm due to the exposure to oxygen during bottling.**

WINE CHEM CONTINUED

For most red wines, as well as big whites like Chardonnay, the malic acid concentration is deliberately lowered during fermentation. The process, malolactic fermentation, is carried out by bacteria, either with or after primary fermentation. The bacteria—oenococcus oeni—convert each molecule of malic acid into a corresponding molecule of lactic acid. Favorable conditions for this fermentation include:

Temperature 65 to 75 degrees F
pH above 3.2 (above 3.4 is even easier)
Alcohol below 14%
Total SO_2 below 30 ppm
Free SO_2 below 10 ppm

The safest way to carry out malolactic fermentation is after primary fermentation, although the conditions for the bacteria are more favorable prior to completion. The safety factor enters because oenococcus oeni, in the presence of sugar, can produce the volatile acids of vinegar mentioned above. But what about the chemistry?

The reaction is:

$C_4H_6O_5$ (malic acid)$\rightarrow C_3H_6O_3 + CO_2$ (lactic acid and carbon dioxide)

The process is generally considered complete when the residual malic acid level drops below about 30 ppm. At that level, most authorities consider it highly unlikely that spontaneous malolactic fermentation will restart after bottling. (If it did, the wine would turn fizzy and cloudy, also developing off aromas). It is important for home winemakers to note that this is just a "generally accepted" level for commercial wine and is not some absolute barrier. At 30 ppm, a wine that started with 2500 ppm will be 98.8% complete. If instead your wine has 35 or 40 ppm left, it is just a matter of having perhaps 1.3% remaining instead of 1.2%. That is not a very big difference to be concerned about. If you keep your wine under good cellar conditions and bottle with adequate SO_2, there is very little risk of spontaneous refermentation of a tiny amount of malic acid.

And what about that lactic acid? You now have just as much of that as you had malic acid to start. Lactic, however, is a monocarboxylic acid:

CH_3-HCOH-COOH

There is just one active proton at one end of the molecule. Since we get one lactic acid molecule for every malic molecule, but it only has half the active protons, it drops the malic acid contribution to TA by half. Effectively, the 0.2 to 0.35% goes to 0.1 to 0.18%. Furthermore, lactic acid has a much milder flavor than malic acid. In contrast to apples, lactic acid is the acid of yogurt and cheese—smooth and creamy! The pKa is 3.08, keeping us in the general pH range of wine. If you submit juice or wine to a laboratory for a complete acid analysis, two more fixed acids may show up. As mentioned before, citric acid is a minor contributor to TA. In grapes affected by the "noble rot" botrytis, however, citric acid can be very high and may contribute to the racy flavors of some late-harvest wines. Succinic acid is also sometimes present as a fermentation product, but generally at levels well below 0.1%.

So that's it for the acids. But several times I have mentioned pH, which everybody knows is somehow related to acid.

I love talking about pH and can go on for hours about it. But this is all the column inches I could coax out of Editor Robyn this year, so you'll have to wait until summer 2010 for Part C of Wine Chem 101: All About pH!

Grape Growers Wanted!

We keep a book at our shop giving information provided by grape growers with small lots of grapes for sale to amateur winemakers. The program has effectively bridged the gap between the grower needing to find a home for some excess crop and the winemaker looking for a supply to harvest.

If you would like to place a listing, please send us a list of grapes available, with your name, address and phone number. Also indicate:

The estimated Picking Date
Varietals available
Minimum/Maximum available
Price with/or without picking
Age of vines
Vineyard Location

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.
3. Extra glass 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.
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, such as Sparkolloid.(optional)
7. ML 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 8 and 9.)

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.

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 12.

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.

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 **Add an ML culture** (optional) to the wine about half to two thirds through fermentation or in the case of direct pitch strains like *Enoferm Alpha or Beta,* add to the fermentors after pressing.

9 **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

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	

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.

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 chips. 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.

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.).

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.** Place the crushed grapes in a covered container to stand from 2 to 18 hours (longer for the "big, less fruity" varieties.) 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 into a glass, stainless steel, or oak fermentor which is filled no more than 3/4 full.** Yeast should be added, a gram a gallon and a fermentation lock attached to the fermentor. Add nutrients according to the article on page 12.

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 finings adequately on its own. For oak flavor add oak sticks or liquid oak extract now.

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.

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. Light, fruity, white wines may be enjoyed within two months 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 keep cool. 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 actually pressing the grapes.

Fruit Wine Procedures

Use the following procedures for 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 and optional Grape Tannin**. Add 5 tablespoons of **Sodium Metabisulfite stock solution** and mix well. *(See pg. 9 for stock sulfite recipe.)*

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

5. 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 or it will foam out and spill.*

7. When bubbles are no longer actively rising through the wine, **siphon the wine back together into one full carboy**. Fine with **Sparkolloid** *(see pg. 10 for mixing Sparkolloid)*, add a teaspoon per gallon of **sulfite stock solution** and let set for four weeks under the 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 1 1/2 teaspoons sulfite solution** per gallon. 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.**

Recipes

Blackberry or Loganberry Wine

20 lbs. Blackberries or
12 1/2 lbs. Loganberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

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

Blueberry Wine

15 lbs. Blueberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

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

Raspberry Wine

15 lbs. Raspberries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
1 1/4 tsp. Grape Tannin
5 grams Epernay II Wine Yeast

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

Cherry Wine

22 1/2 lbs. Sweet Cherries or 15 lbs. Sour Cherries
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
(Omit Acid with Sour Cherries)
1 tsp. Grape Tannin
5 grams Epernay II Wine Yeast
Original Brix: 20
Total Acid: .6-.65%

Plum Wine

15 lbs. pitted Plums
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
7 tsp. Tartaric Acid
5 grams Epernay II Wine Yeast

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

Cranberry Wine

15 lbs. Cranberries
1 lb. Raisins
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
5 grams Epernay II Wine Yeast

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

Apricot Wine

17 1/2 lbs. Apricots
12 lbs. Corn Sugar
5 gallons Water
2 1/2 tsp. Yeast Nutrient
2 1/2 tsp. Pectic Enzyme
5 Tbl. stock Sodium Bisulfite solution (initially)
9 tsp. Tartaric Acid
1 tsp. Grape Tannin
5 grams Epernay II Wine Yeast

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

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 and or milliliters to the volume of wine.

After almost 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 nearly 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.

Time after time, wine samples are 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 have two ways for you to keep up with testing your SO_2.

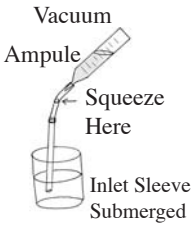
The Reflectoquant Free SO_2 Test

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, very small bottle, with a fresh sample of wine**. (187ml 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.

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.

The Titret Kit

Begin the test by inserting the loose plastic inlet sleeve 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. Squeeze this 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 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 on the next page 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, the pH should be lowered early in the life of the wine by the addition of Tartaric or Phosphoric Acid.

Sources of SO_2

SO_2 is available as *Campden tablets*, effervescent Oenosteryl 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 Oenosteryl 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

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 Pipettes 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.

Use one of the following solutions to add metabisulfite to your wine. Make a 10% solution if your additions are to larger vessels like barrels and tanks, or a 3% solution for carboys and jugs.

Preparing a 10% Stock Solution

Using a gram scale, weigh out 100 grams of Potassium Metabisulfite and dissolve in 1 Liter of water. Tightly stopper and store labeled: "poison'! For additions of sulfite in large lots, you will prefer to use the information provided in the following table. Just make sure that your 10% stock solution is fresh and measured carefully. *See notes below left*

10% Solution of Metabisulfite

	(Desired final SO_2 concentration in ppm.)						
Must/Wine	10	20	25	30	40	50	75
(gallons)	*(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

Preparing a 3% Stock Solution

Dissolve four ounces of sodium or potassium metabisulfite powder, (a package size readily available in retail stores) in one gallon of warm water. This is weaker than the 10% solution given above, in fact it is about a 3% solution.

At this concentration, the solution is still quite strong and should be clearly labeled and kept out of reach of children. This stock solution will remain at relatively full strength for up to six months if the jug is kept capped.

3% Solution of Metabisulfite

	(Desired final SO_2 concentration in ppm.)				
Must/Wine	10	21	33	43	65
(gallons)	*(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.

Fining Procedures

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

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 away from the lees in about 10-14 days

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	10-40 g/ 5 gallons	White wines	Slurry with juice or water in blender.	Add to must prior to fermentation.
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.

Sugar, Acid, and pH

by Bob Peak

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.

For the 2006 harvest, my wife Marty and I decided to give several home kits and techniques a try. We used a laboratory test panel as our reference and ran our own tests to match on our home-grown pinot noir and chardonnay. We did not have laboratory results in hand prior to running our own tests. In the interest of full disclosure, I should note that both Marty and I have bachelor's degrees in chemistry and she also has a master's in chemical engineering, but no such education is needed for *The Beverage People* test kits!

Sugar

The harvest home test for sugar is a brix refractometer, which is the same instrument many laboratories use. We crushed the pinot noir grapes and stirred the must before taking a sample with a thief. We crushed, soaked up, and pressed the chardonnay before taking that juice sample. (The split samples for the lab were collected at the same time.) Using the refractometer is very easy. First, it is calibrated with a few drops of 20º brix reference solution. Then it is rinsed with distilled water, and a few drops of grape juice are placed on the prism. Our results were 24.2 brix for the chardonnay and 26.0 brix for the pinot noir. The lab said 24.1 for chardonnay and a matching 26.0 for the pinot. Conclusion: using a refractometer at home can provide very reliable harvest sugar readings.

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. The lab results on our juice samples came in at 0.809 grams per 100 mL on the Chardonnay and 0.760 on the pinot.

At *The Beverage People*, we offer two 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. Executed carefully at the kitchen table, it gave us a result of 0.81 on the chardonnay and 0.62 on the pinot noir. The close correlation on the white juice (and less success on the red) probably reflects the difficulty of seeing the pink endpoint in the grayish-pink "red" must.

Next, we tried 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. For the chardonnay, we got 7.9 (0.79) and for the pinot noir 6.8 (0.68). Both are close enough to lab results that we would probably not do anything different in fermenting the wine based on these answers.

pH

Laboratories use a pH meter integrated with their autotitrator for this test. Laboratory results were 3.38 for the chardonnay and 3.43 for the pinot noir. Using the *pH Tester 20* meter that we carry at *The Beverage People*, Marty and I measured 3.32 on the chardonnay and 3.36 on the pinot. At less than one tenth of a pH unit difference on each, these results are very comparable and the home results are certainly adequate for winemaking judgments.

Note: Always calibrate your pH meter before using. Use the buffer solution pH 7 first, then calibrate to pH 4 then measure the wine pH. Rinse the probe in de-ionized water after each set point and after use. If your meter is sluggish, leave off and soak the probe in 4 pH buffer overnight, and/or replace the batteries.

JUICE TESTING FOR SUGAR, ACID, PH AND 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 two labs near the store, Vinquiry in Windsor (707) 838- 8612 and Scott Labs in Petaluma and now Healdsburg (707) 765 - 6666. 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 theses parameters at home. (See p.11)

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 13). 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 Addition 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.

Handling & 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.

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). Remember that the option is always to use what is freshest and available to you, if all of these strains are not in supply. We try to stock all of these during harvest. See page 17, for instructions on **Rehydrating** dry yeast. Please read page 12 for **Nutrients** programs for yeast.

To find fermentation specifics, read down	*Assmanshausen*	*Beaujolais 71B*	*Brunello BM45*	*CSM*	*Epernay 2*	*French Red (BDX)*	*ICV D254*	*M-2*	*RP15*	*P. Champagne*	*Prise de Mousse*	*Rhone L2226*	*RC212*	*Steinberger*	*VL1*	*43*
Varietal	*Pinot Noir*	*Zinfandel Syrah*	*Sangiovese*	*Bordeaux*	*Zinfandel*	*Bordeaux*	*Chard Red Rhones*	*Chard, Cabernet*	*Syrah*	*Chard Cabernet*	*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*	
Enhances Mouthfeel	*YES*						*YES*	*YES*							*YES*	*YES*
*Sensory Effect **	*EVC*	*Estery*	*EVC*	*EVC*	*EVC*	*EVC*	*EVC*	*Estery*	*Complex*	*Neutral*	*Neutral*	*EVC*	*EVC*	*EVC*	*EVC*	*YES*
Reduces Vegetal Character	*YES*			*YES*	*YES*			*YES*								
Stabilizes Color	*YES*			*YES*		*YES*	*YES*		*YES*			*YES*				
Cold tolerant					*YES*						*YES*			*YES*		
Use to Restart										*GOOD*	*GOOD*	*GOOD*				*EXCELLENT*
Temperature Range F.	*68-86*	*59-86*	*64-82*	*59-89*	*50-80*	*64-86*	*50-85*	*59-86*	*59-90*	*59-80*	*50-86*	*59-82*	*68-86*	*40-70*	*60-68*	*55-95*
Vigor	*Slow*	*Average*	*Average*	*Average*	*Average*	*Average*	*Fast*	*Fast*	*Average*	*Fast*	*Fast*	*Fast*	*Average*	*Slow*	*Slow*	*Fast*
Alcohol Tolerance %	*15*	*14*	*16*	*14*	*15*	*16*	*16*	*16*	*17*	*17*	*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*	*Medium*	*Low*	*High*	*High*	*Low*	*Low*	*Low*
*Reaction to Oxygen ****	*Medium*			*Low*			*Medium*		*Low*		*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*	*Vigorous*	*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 12 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.

Tanks for the Memories

By Bob Peak

But seriously, folks, we just do not seem to spend enough time and energy talking about stainless steel tanks. We often jump from glass carboys or plastic Better Bottles directly to barrels, without really considering the variable capacity tanks (see p. 16). I love my tank! I have a 200-liter (52-gallon) tank that I use every wine season, usually more than once.

These so-called "floating lid" tanks allow you to place the stainless steel lid at any height within the cylindrical tank and secure it there by inflating the included vinyl gasket with the dedicated air pump. The lid does not actually float, but the placement method does allow an infinitely variable volume for the tank. Although not jacketed, the thermally conductive stainless steel shell does allow easy transfer of heat by putting the entire tank in a cooled wine cellar. In that mode, I routinely ferment my chardonnay and chenin blanc wines in my wine cellar at 55° F. For primary fermentation of whites like that, I just position the lid three or four inches above the juice surface to allow for foaming. I can easily thief out a sample through the fermentation-lock port in the lid to check for completion of fermentation. (On the subject of primary fermentation, though, I will point out that these tanks are not ideal for red primary fermentations. The tall, narrow aspect ratio makes the thick cap difficult to punch down and mix effectively).

I do, however, put my red wine in the tank for malolactic fermentation. Once again, that heat transfer comes in handy. I put the tank in a small room with a space heater, add the pressed red wine, inoculate, and get good fermentation in just a few weeks at 70° F.

For either reds or whites, a tank is excellent for use of oak alternatives. Whether you use chips, sticks, or staves (see p. 15), adding the product is easy through the port or before you put the lid in place. The same thief-and-sample protocol as for fermentation allows you to check for development of oak flavor and aroma.

Finally, a tank serves as an excellent blending vessel for bottling. If you have some wine in a barrel, plus perhaps some carboys of topping wine, you can pump all of it into the tank to make a single final blend. If you can set the tank on a table or bench first, then you can make a final sulfur dioxide addition and bottle directly from the tank.

Even without putting the tank on a table first, I have found a way to fill by gravity and drain by gravity, more delicately handling my white wines. I have the tank on a hydraulic ATV/Motorcycle jack (1500 pound capacity with a 19" maximum height for about $140 from Sears.com). After setting carboys on a shelf and draining down into the tank at the lower position, I jack it up and start the bottling!

When empty, the tanks are light and easy to handle. For my 200-liter tank, I just carry it out on the lawn and brush it down with some proxycarb, then rinse with the hose. I can easily turn it upside down to drain out, before putting it back in the cellar with an old towel over the top to let it dry dust-free. For the larger sizes, you may want a helper, but no forklift is needed! Keep in mind that the 500-liter size, at 28 ¾" in diameter, is the largest one that will go through a narrow 30-inch household door.

With sizes from 100 liters to 600 liters, plus two with cone bottoms and a second drain valve, we have a tank for every cellar. Try one for a few vintages, and we'll have you saying "tanks for the memories", too!

Homemade Oak Flavoring

Homemade Oak Extract is a sound alternative to barrel storage. The marriage of flavors takes place in glass or stainless steel storage containers instead of barrels and therefore needs to be racked at least as frequently as a barrel to slowly introduce oxygen. Other than maintaining that program, the effects of oak flavor and aroma will very nearly match the tastes imparted from storage in oak cooperage. To make up your extract you will need a few supplies, as well as the oak chips.

You will need:

8 oz. Oak Chips, Plain or Toasted	1 yd. Cheesecloth
25 oz. Vodka (or Everclear)	Small Funnel
2 Quart Mason Jars with Lids	.5 ml Pipet or Syringe
100 ml Graduated Cylinder	5 Clean Wine Glasses

To make the extract, fill one Mason jar with the oak chips and fill the jar completely with vodka. Cover and let stand for 24 hours. Line a funnel with several layers of folded cheesecloth and place over the second Mason jar. Pour in the oak and vodka mixture, stand until well drained. You will normally collect approximately 10 to 12 oz. of Liquid Oak Extract. You may further clarify this liquid by straining a second time through a paper coffee filter. Pour the extract into a clean bottle and store until needed.

Trial additions: **measure 100 ml of wine into the graduated cylinder** and add .5 ml liquid oak extract. Pour 1 oz. of this flavored wine into a wine glass and mark .5 ml. Add 1 oz. of wine to the graduated cylinder. Add another .5 ml liquid oak extract. Pour 1 oz. of this second flavored wine into a second wine glass and mark .85 ml. Add 1 oz. of wine to the graduated cylinder and repeat this process 3 more times to give you five wine glasses marked .5, .85, 1.1, 1.28, and 1.41 ml. Now taste and smell these different wines until you decide which amount is the most desirable.

Now, **to treat five gallons of wine**, multiply your favorite amount (in ml) by 188. For example: your favorite sample wine glass holds is the sample with 1.28 ml added. Multiply 1.28 x 188 = 241 ml. Add this extract per 5 gallons of wine you are flavoring. Taste it now and again in three weeks. The wine will appear to have lost some of its fruitier flavor and aromatic components, but after several weeks, the extract will "marry" to the wine and the fruit will reappear. We recommend you do the extract addition several weeks before bottling, in case you want to increase the amount of oak by making a second addition.

Sample	***Dosage***	***Add to 5 gallons***
Glass #1	.50 ml	x 188 = 94 ml.
Glass #2	.85 ml	x 188 = 160 ml.
Glass #3	1.10 ml	x 188 = 207 ml.
Glass #4	1.28 ml	x 188 = 241 ml.
Glass #5	1.41 ml	x 188 = 265 ml.

Barrel Care Procedures

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 rancidity 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 a Barrel 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 a Barrel 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 completely. 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.

Great Oak Flavor, Without A Barrel

There are several methods of adding oak flavor and aroma without using a barrel.

Oak staves take about six weeks to three months for full extraction, extracts are instantaneous and oak chips take only 48 hours.

Oak **chips** are made from full size staves, with all the normal drying and kilning but chipped for easy addition to any size container. They can even be added into the must during fermentation. Use about 3 oz. per 5 gallons. They impart great flavor, but aren't heavy in the aromatic department.

Staves can be added any time after fermentation to tanks or barrels which have lost their oak-i-ness. We now carry two types of staves. From, *Mistral Barrels* we are now carring the Mini Zig Zag®. These staves have a 30% new barrel extraction perfect for 30 gallon containers. We are still carrying the larger oak staves Chain of Oak® from *Innerstave*. These staves will give you 30% new barrel extraction in a full size barrel. Both products consist of separate oak staves that tie together with nylon ties. We carry both French and American oak in the Zig Zag® and The Chain of Oak®, in both medium and dark toast.

Also see our new lineup of Oak **staves** for use in Carboys. Three sticks in 5 gallons will impart 30% new barrel oak. They come in packs of 10 in both French and American oak varieties. After extraction, the sticks can be removed and or the wine racked off the stick. Used sticks are great on the barbeque.

Finally, Liquid Oak **Extract is** a highly concentrated product, that can be added all the way up to bottling, for making fine tuning adjustments or just finishing a wine that seems lacking in aroma. See page 14 for instructions on how to make your own oak extract. See page 18 for all these products and small American and French barrels.

2009 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	$300.00
WE03	#30	12"	17"	7	$375.00
WE04	#35	14"	19"	12	$450.00
WE05	#40	16"	21"	18	$575.00
WE06	#45	18"	24"	25	$675.00
WE07	#50	20"	26"	34	$775.00
WE27	#40	*(All Stainless Cage and Base and Legs)*			$875.00

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.

WE54	Piston, manual Hydraulic Press on wheels #40	16" x 21"	$1995.00
WE50	Piston, manual Hydraulic Press on wheels #50	20" x 26"	$2500.00

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	$1200.00
WE46	#54 with wheels	21"	28"	42	$2600.00

#50 Piston Press

Crushers and Stemmer/Crushers

Crushers: Manual rollers crush the grapes 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 crusher with Paint finish	$250.00
WE13	Double roller crusher with all stainless hopper *(Shown right.)*	$325.00
WE35	Boxed roller crusher, stainless with removeable supports	$295.00
WE30	Boxed APPLE crusher, stainless hopper, cutting knives, removeable supports	$450.00

Roller Crusher

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	$575.00
WE16	Electric 110V, paint grade stemmer/crusher *(Shown middle right.)*	$750.00
WE17	Electric 110V, stainless steel stemmer/crusher	$850.00
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 bottom right)*	$1195.00
WE20	Support Stand w/ stainless chute	$225.00

WE25 Stemmer/Crusher

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.)	$650.00
WE45	500 Liter Stainless tank (132 g.)	$850.00
WE41	600 Liter Stainless tank (158 g.)	$1050.00
WE53	300 Liter Stainless tank /Bottom cone, 3 legs	$1275.00
WE47	500 Liter Stainless tank /Bottom cone, 3 legs	$1475.00

3 Spout Bottle Filler

Fillers

WE19	Plastic Model 3 Spout Bottle Filler.	$149.95
WE28	All Stainless 3 Spout Filler Filler comes w/drip tray	$475.00
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.

EQUIPMENT KITS

"Premium" Wine Equipment Kit

Complete with a ten gallon primary fermentor and lid, a six-gallon Better Bottle® secondary, 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*.

BNW01 ..... $224.95

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

Mead Equipment Kit

Includes a 6 - gallon Better Bottle® primary and 5-gallon Better Bottle® secondary fermentor with stopper and airlock, a siphon assembly, bottle filler, an Acid Test kit, Hydrometer and Test jar, the "Emily" Capper, caps, a spoon, sanitizer, a bottle brush and the book *Making Mead* by Morse. BN60 ..... $139.95

Meadmaker's Ingredient Kit

9 lbs. of our clover honey with yeast, nutrients, acid blend, sulfite, priming sugar and instructions, makes 5 gallons of sparkling mead.
BN50 .....$39.95

INGREDIENTS

Canned Ingredient Kits for Winemaking

Two cans of concentrate of your choice are included with instructions for 5 gallons of wine. Choose your flavor from the list below, and we include instructions, yeast, sugar, acid blend with yeast nutrient and a pack of wine labels.

BNW02 (with C002, C004, or C006) $39.95
Premium Kit BNW04 (with C003, C005, C006 or C008).....$49.95

Choose your flavor
(you may also choose from these items for purchasing individual cans)
(C002) **Chenin Blanc,** (C004) **Chablis**, (C006) **Burgundy** $12.95
(C003) **Cabernet Sauvignon,**(C005) **Muscat**, (C001) **Zinfandel** or (C008) **Chardonnay** $18.95

Seedless Fruit Puree

Each 49 oz. 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

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) $109.95
C036 **Sauvignon Blanc** (W) $84.95
C038 **Montepulciano** (R) $109.95

Dry WineYeasts

Choose your yeast from the information given on page 13. Use one gram per gallon. Shelf life is 3 to 4 months, if kept refrigerated much of that time. To rehydrate: Boil 4 oz. of distilled water, cool to 100°F, add dry yeast and agitate for 10 minutes. Then spread over juice or grape must. Stir now and stir again in 24 hours. **We also have 4 oz and 1 lb packages. See our website or call.**

10 grams $1.95
WY27 ***Pasteur Champagne*** (All-purpose yeast)
WY23 ***Prise de Mousse*** (Low foam yeast for Whites)
WY38 ***Assmanshausen*** (Pinot Noir, Zinfandel)
WY25 ***Beaujolais 71B*** (Fruity, aromatic reds)
WY45 ***Brunello BM45*** (Sangiovese, Macerations)
WY53 ***CSM*** (Cab Sauv., Merlot, Cab Franc)
WY22 ***Epernay 2*** (Fruit wines and Blanc de Noirs)
WY30 ***French Red*** (Cabernet, Merlot, Zinfandel)
WY44 ***ICV D254*** (Chardonnay)
WY50 ***M2*** (Premium Chardonnay and Cabernet)
WY29 ***Steinberger*** (Riesling and Gewurztraminer)
WY35 ***Rhone #L2226*** (Syrah, Rhone)
WY55 ***RC212*** (Pinot Noir, other blush wines)
WY31 **NEW! *VL-1*** (Viognier)
WY24 **NEW! *RP-15*** (Syrah, Zinfandel)
WY28 ***Uvaferm 43*** (Fast, High Alcohol Reds)

MaloLactic Cultures

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

WY32 ML Culture, ***Wyeast #4007-WY-** 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 60 gallons directly. With instructions.....$27.95

WY66 ML Culture, ***Enoferm Beta Strain***, 2.5 g. pack inoculates 60 gallons directly. With instructions.....$27.95

Acids

A17 **Ascorbic.** 1 oz. $2.50
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. $1.25

Sugar, Nutrients & Preserving Aids

AD15 **Corn Sugar.** 5 lbs $6.95
QR04 **Pectic Enzyme.** 1 oz. $1.85
FN18 **Potassium Sorbate.** 1/2 oz. ..... $ .99
FN35 **Wine Conditioner/Stabilizer.** 500 ml. $6.95
WY60 **Lysozyme liquid "Lyso-easy".** 250 ml. $29.95
QR11 **Yeast Nutrient (Diammonium Phosphate).** 2 oz. $1.95
QR33 **Autolysed 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 for 66 gal.) 50gr. $5.95
QR50 **Yeast Nutrient for Meads.** (Our special blend) Use 2 oz. per 5 gallons. 2 oz. $1.95
MS42 **Private Reserve™.** Canned inert gas $10.95

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. . $ 2.95

Equipment and Supplies

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 style -Silicone** - 2", Dalco Dual™ $4.95

Barrel Supplies

FST48 **Silicone Bung Solid** (1.5" Bottom, #9 size and Better Bottle® plastic carboys). $6.95
FST40 **Silicone Bung Solid** (44 X 55 mm) (#11 size). $6.95
FST44 **Silicone Bung Drilled** (44 X 55 mm) (#11 size) $3.95
B21 **Hardwood Bung** (specify diameter) $4.95
B37 **Barrel Wax** 4 oz. $3.95
MS06 **Mildewcide** Barrel Coating, 16 oz. $6.95
Spigots: Wood. SP31 **2.25**" $8.95, SP32 **6**" $9.95, or SP35 **8**" $10.95 Additional spigots 2 1/2" to 12" in length are also available.
B13 **Hoop Nails** Pack of 20.. ..... $1.25
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

Spigots

Spigots: Wood. SP31 **2.25**" $3.95, SP32 **6**" $4.95, or SP35 **8**" $10.95 Additional spigots 2 1/2" to 12" in length available.

Fermentation and Storage Containers

P16 10 liter Plastic Pail, with Pour out lip and Bail Handle. $8.95
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** (4 mil, 60 gal.) $5.95
P04M **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.
QE44 **Carboy Draining Stand.** $8.95
QE34 **Carboy Handle.** 3, 5 and 6 gallon size $6.95
QE47 **Carboy Handle.** 7 gallon size $6.95
MS02 **Carboy Carrier, Nylon Web** $12.95
GL02 **3 Gallon Glass Carboy.** $28.95
GL01 **5 Gallon Glass Carboy.** $36.95
GL40 **6 Gallon Glass Carboy.** $41.95
GL04 **7 Gallon Glass Carboy.** $42.95
GL45 **5 Gallon BETTER BOTTLE®** $26.95
GL13 **6 Gallon BETTER BOTTLE®** $28.95
GL55 **3 Gallon BETTER BOTTLE®** $22.95

BETTER BOTTLE® LIGHTWEIGHT, NO TASTE NO ODOR NO O_2

Oak Products

NEW! Mistral™ Oak Chips, 1 lb. bag. ***(Larger chip size)***
B46 **American Medium Toast.** $5.95, *or* B24 **French Medium Toast** or B25 **French Dark Toast**. $6.95

Carboy Oak Stick Inserts (pack of 15) ***(Carboy insert)***
(Each stick provides 10.4% surface of new oak in 5 gallon carboy.)
B80 **American Medium.** $20.95, B82 **American Dark.** $21.95, B81 **French Medium** $24.95, or B83 **French Dark**. $25.95

NEW! Mistral Oak™ Mini Zig Zag Staves ***(Tank or Barrel insert)***
(16.5% surface of new oak a 60 gallon barrel.)
B26 **American Medium.** $26.95, B27 **American Dark.** $26.95, B28 **French Medium** $39.95, or B29 **French Dark**. $39.95

Chain-O-Oak™ Innerstave™ 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

New Oak Barrels: (Kiln Dried)
B04 **American Oak, 5 gallon** $189.95
B05 **American Oak, 10 gallon** $204.95
New Oak Barrels: (Air Dried)
B47 **American Oak, 26 gallon** - medium toast $359.00

Recooped French Oak Barrels: (Shaved and Rebuilt from full size barrels, with new Hoops) *(Barrels come with medium toast.)*

B84 **French Oak, 10 gallon** $300.00
B85 **French Oak, 15 gallon** $325.00
B86 **French Oak, 20 gallon** $325.00
B48 **French Oak, 30 gallon** $335.00

Small American Oak Barrels:

B01 **American Oak, 1 gallon** $99.95
B02 **American Oak, 2 gallon** $114.95
B03 **American Oak, 3 gallon** $129.95
B05 **American Oak, 5 gallon** $204.95

Vinegar Barrels are paraffin lined (P):

B09 **American Oak, 1 gallon** *(P)* $89.95
B10 **American Oak, 2 gallon** *(P)* $104.95
B11 **American Oak, 3 gallon** *(P)* $119.95

Liquid Barrel:

B42 **Liquid Oak Essence.** Extracted from pure Dark French Oak Chips, in alcohol, this 4 oz. size treats 5-10 gallons of red wine, 10-15 gallons of white wine. $5.95

SIPHON HOSE

Sold by the FOOT

HS03 **5/16"** i.d. ..... $ .59
HS04 **3/8"** i.d. ..... $ .59
HS14 **7/16" i.d.** ..... $ .79
HS05 **1/2"** i.d. ..... $ .79
HS06 **1/2"** i.d. thick wall. ..... $ 1.09
HS07 **5/8"** i.d. thick wall. $1.19

Funnels

QE24 **Carboy Funnel, 8" Anti-Splash** $10.95
QE22 **Medium 6" Bottle Funnel** $4.95
QE21 **Small 4" Bottle Funnel** $2.95

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"	$ 1.05
7	FST14	1 7/16"	1 3/16"	$ 1.25
8	FST15	1 5/8"	1 5/16"	$ 1.40
8.5	FST16	1 11/16"	1 7/16"	$ 1.45
9	FST17	1 3/4"	1 15/32"	$ 1.55
10	FST19	1 31/32"	1 5/8"	$ 1.95
10.5	FST20	2 5/64"	1 3/4"	$ 2.25
11	FST21	2 13/64"	1 7/8"	$ 2.35
11.5	FST22	2 15/32"	2"	$ 2.95
12	FST23	2 1/2"	2 1/8"	$ 3.05
13	FST24	2 11/16"	2 9/32"	$ 3.25

Most sizes are available solid, at the same price.

Racking and Pumping

QE11 **5/16" Racking Tube.** $3.95
FST02 **Hose Shutoff Clamp for 5/16" hose.** $1.50
QE33 **1/2" Racking Tube.** $4.95
FST03 **Hose Shutoff Clamp for 1/2" hose.** $2.95
QE17 **Bottle Filler for 5/16" hose.** $4.95
QE20 **Bottle Filler for 1/2" hose.** $5.95
PS26 **Transfer Pump**, phenolic head, electric $139.95
F01 **Filter/Strainer** for Pumps (Use with 1/2" hose) $18.95
PS36 **Procon Brass Pump**, 4 GPM, 1/4 HP $325.95
PS35 **Procon Stainless Pump**, 4 GPM, 1/4 HP $450.95

PS04 *Pump hose barb fitting*, 3/4" Female Garden Hose Thread x 1/2" barb. (For PS26 Pump). Plastic . $2.95
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. Stainless steel $10.95

PS35 Procon Stainless Pump with PB05 fittings

Filters

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. Pump is also useful alone for racking wine. $495.95

Pads for Super Jet Buon Vino (Set of Three):
F09 **5-7 m. Coarse** ...$3.95
F22 **0.8 m. Fine** $3.95
F21 **0.5 m. Sterile** $4.95
F23 **25 Backing Papers** for Filter Pads $4.95

F03 **10" Cartridge Filter Housing.** Best for early cleanup of wine and larger volumes than the *Buon Vino*. Choose a cartridge from list below. The smaller the micron rating, the more sediment is removed. Clear, poly housing, cartridges are one use.....$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 **3/8" hose.** or PS03 **1/2" hose.** $1.99

Miscellaneous

KEG58 **Food Grade Lubricant.** 4 oz. $3.95
MS03 **Silicone Spray Lubricant.** 10 oz. $9.95
MS09 **Gondola Enamel.** Food grade paint. 16 oz. ... $10.95
MS32 **Grape Picking Shears.** $16.95
MS16 **Grape Picking Knife.** Plastic handle $6.95
QE36 **Grape Masher.** (Cap punch tool) 24" long $31.95
MS43 **Wine Away™.** 12 oz. Spray bottle. $9.95
MS42 **Private Reserve™.** Nitrogen gas in a can $10.95
MS33 **Wine Agitator/Blender.** Nylon whip to stir or de-gas wine, use with a drill. $10.95
MS34 **Wine Degasser.** 16" Stainless $19.95

Mesh Pressing Bags:

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

Stainless Single Mesh Sieve-Strainer:

QE39 10 1/4" Diameter. $19.95

Cleaners and Sanitizers

CS12 **Soda Ash** (Barrel cleaner) 1 lb. $1.95
CS29 **Sodium Percarbonate** (Cleaner) 1 lb. $4.95
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 Oenosteryl Effervesent Tablets (3 pk)** $2.95
CS35 **5 g Oenosteryl Effervesent Tablets (3 pk)** $3.95
B39 **Sulfur Strips** 2 strips ..... $ .69
B38 **Sulfur Strips** Bundle of 70 strips $18.95
CS31 **TDC™ Glass Cleaner** 1 Liter. $13.95
CS03 **I O Star Sanitizer** 32oz $14.95
QE29 **Bottle Brush** $4.95

Bottling Supplies

BE01 **Double Lever Italian Corker.** $34.95
BE19 **Mini-Floor Corker.** *Nylon Jaws* $74.95
BE03 **Heavy Duty Floor Corker.** *Brass Jaws* $149.95
QE09 **90 Bottle Draining Tree.** $39.95
WE19 **Plastic Model 3 Spout Bottle Filler.** $149.95
WE28 **Stainless Steel 3 Spout Bottle Filler.** Includes drain tray $475.00
WE29 **Stainless Steel 5 Spout Bottle Filler.** Includes drain tray $575.00
WC11 **1 3/4" Chamfered Corks.** 25 pack $9.95
WC06 **1 3/4" Chamfered Corks,** 100 pack $36.95
WC14 **1 3/4" Twin Disk Corks.** 100 pack $24.95
WC08 **1 3/4" Supreme Corq® Corks.** 100 pack $26.95
WC07 **1 3/4" Corks.** 100 pack $36.95
WC13B **1 3/4" Twin Disk Corks.** 1000 pack $215.95

Grape Masher (QE36)

Heavy Duty Floor-Model Corker (BE03)

Stainless Bottle Filler Three Spout (WE28)

WC01B 1 3/4" All Natural Cork, 1000 pack $325.00
TC20 **Plastic Champagne Stoppers** ea. ..... $ .12
TC21 **Champagne Wires** ea. ..... $ .10
TC18 **28 mm Black Top Bar Top Cork** ea.. ..... $ .29
TC28 **28 mm Black Top Bar Top Cork** 100. ..... $ 26.95
S01 **28 mm Metal Screw Caps** ea.. ..... $ .20
S02 **38 mm Metal Screw Caps.** ea. ..... $ .25
S03 **28 mm. Plastic Polyseal Caps** ..... $ .35
S04 **38 mm. Plastic Polyseal Caps** ..... $ .85

Bottle Seal, Wax Available in 8 colors $10.95
SL26 *Black*, SL27 *Burgundy*, SL28 *Gold*, SL29 *Silver*, SL31 *Blue*, SL30 *Holiday Red*, SL32 *Green*, or SL34 *Purple*. 1 lb.

Heat Shrink Plastic Sleeves. Apply to bottle neck with hot water (180°F.) or heat gun. *Specify*: SL18 *Silver,* SL33 *Green,* SL20 *Gold*, SL19 *Burgundy,* or SL09 *Blue*. *Also for Burgundy bottles Oversize Sleeves are* SL01 *Maroon,* SL02 *White,* SL03 *Black*. Sold by the Dozen ..... $ 1.19

Gum-Backed Label Making Paper. *White* L38, *Blue* L39 or *Green* L40. 18 Sheets, 8 1/2 x 11. ..... $6.95
MS15 **Label Glue** 16 oz. $6.95
MS24 **Iceproof Label Glue** 32 oz. $12.95
MS26 **Manual Label Gluer** Glue Pot. $349.95
BE07 **Super "M" Crown Capper** $42.95
BE10 **Plain Crown Caps** 1 gross (144 caps) $3.95
GL03 **Green** or GL16 **Flint Bottles** 375ml. 12/cs.. ..... $12.95

Tapered Corks, Solid

Size	Code	Top	Bottom	Price
# 9	TC05	23.8mm	18.6mm	$ .20
#14	TC06	31.8mm	25.8mm	$ .70
#16	TC07	34.9mm	27.9mm	$ .90
#17	TC23	35.9mm	29.9mm	$ .95
#18	TC08	38.1mm	30.9mm	$ 1.00
#20	TC09	41.3mm	34.1mm	$ 1.20
#22	TC10	44.5mm	37.3mm	$ 1.60
#24	TC11	47.6mm	40.5mm	$1.90
#26	TC12	50.8mm	43.6mm	$2.10

Wine Laboratory

Sugar & Alcohol Testing

TE40 **Economy Hydrometer** has Brix, Specific Gravity, and Potential Alcohol scales. 10" $10.95

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

Precision Hydrometers (Brix only).
Specify range: TE43 **-5° to +5°**, TE44 **-1° to 11°**, TE45 **9° to 21°**, or TE47 **20° to 50°** $21.95

TE39 **Hydrometer Proof and Traille** $10.95

TE65 **"Santa Rosa" Residual Sugar Kit.** 36 Tests (with instructions). $26.95

TE23 **Refractometer**, 0-32° Brix, Automatic Temperature Compensation, boxed w/padded carrying case $79.95

TE32 **20° Brix Solution.** Sugar solution to standardize the refractometer. 2 oz. $3.00

TE13 **Vinometer.** Measures alcohol in dry wine $7.95

Labware

Regular Test Jar for 10" Hydrometer.

TE55 **Plastic.** 10" $4.95

TE08 **100 ml. Graduated Cylinder** ***Glass.*** $14.95

TE111 **250 ml. Graduated Cylinder** ***Glass.*** $18.95

TE112 **500 ml. Graduated Cylinder** ***Glass.*** $23.95

Tall Test Jar for 11" Hydrometer.

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

TE54 **Glass.** 1/1/2" x 12" $15.95

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.*** $11.95

TE85 **3000 ml.** ***Polypropylene*** **Beaker** ***w/handle.*** $14.95

TE10 **500 ml.** ***Pyrex*** **Erlenmeyer Flask.** $10.95

TE09 **1000 ml.** ***Pyrex*** **Erlenmeyer Flask.** $15.95

Sulfite and Acid Testing Kits

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** (for TE30) (100 ml.) (for TE30). $8.95

TE02 **Titrets® Free SO_2 Test Kit.** Pack of 10. ..... $18.95

pH and ML Testing

TE73 **Waterproof pH Tester20 DJ.** Digital, battery operated, accuracy to 0.01 pH. Automatic temperature compensated, double junction electrode can be replaced. $99.95

TE69 **Replacement Electrode for Waterproof pH Testr2** (old model) $39.95

T35 **Replacement Electrode for Waterproof pH Testr20.** (new model) $59.95

TE72 **pH Buffer Capsules.** (pH 4.0. and 7.0) One each capsule, to dissolve in 100ml. distilled water to calibrate your meter. $1.95

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

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

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

TE19 **Replacement Pipets.** (100). $6.95

Thermometers

TE53 **Instant Read Dial Top Thermometer.** 0-220°F., Recalibratable, Stainless, 1" Dial x 5" Stem $9.95

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 Thiefs

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

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

TE52 **Wine Thief Glass.** Pyrex. (3/4" by 15") $18.95

TE59 **Wine Thief.** Angled 24" "D" Ring Handle and tough Borosilicate Glass. $46.95

Digital Scale

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

Escali™ Scale

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. Newly revised, advanced home winemaking text..... $ 21.95
BK61 ***Complete Handbook of Winemaking*** American Wine Society. $14.95
BK142 ***Winemaker's Recipe Handbook*** Massaccesi. ..... $ 4.95
BK40 ***Modern Winemaking*** Jackisch. $39.95

BK54 ***How and Why to Build a Wine Cellar***, Gold..... $20.00
BK59 ***A Handbook For Must and Wine Analysis*** A cookbook approach to analysis, for home labs. Barrus & Evans. $24.95
MG11 ***Practical Winery and Vineyard Magazine***, current issue. $4.50
BK109 ***Making Wine at Home DVD,*** Cutler, 1 hour and 15 min. $29.95
MG13 ***WineMaker Magazine*** current issue. $4.95

BK09 ***The Wine Defect Wheel*** diagnostic tool..... $24.95

GRAPE GROWING,CIDER, CHEESE, VINEGAR, MEADMAKING BOOKS

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
BK79 ***Making the Best Apple Cider*** $3.95

Mead

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

Other Fermentations

BK84 ***Making Vinegar at Home***, Romanowski $4.95
BK03 ***Homemade Vinegar,*** Watkins $8.95
CH73 ***The Cheesemaker's Manual***, *Morris* $39.95
BK74 ***Making Cheese, Butter, Yogurt***, *Carroll* $3.95
CH74 ***Making Artisan Cheese,*** *Smith* $19.95
BK75 ***Home Cheesemaking***, *3rd Ed., Carroll* $16.95
BK166 ***The Home Creamery***, *Farrell* $16.95
BK100 ***American Farmstead Cheese***, *Kindstedt* $38.95
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, or Mastercard.

To place your order by check, please note the following, if you live in California, add 8% 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, add $8.00. See exceptions on order form, next page.

Customers in Alaska and Hawaii please take note that *priority mail* service from the Post Office is recommended for packages up to 15 lbs. Heavier packages without perishables can be sent more economically via ground, *parcel post*.

Shipments to Alaska, Hawaii and out of country we must add shipping charges to these orders. These are the exact charges that USPS charges for priority mail.

The Beverage People is proud to operate both a retail and on-line-order supply firm for over 29 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 **©2009 The Beverage People.**

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CODE	QUANTITY	DESCRIPTION OF ITEMS	PRICE	TOTAL
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All our supplies are quaranteed for one year, except yeast which is perishable and should be refrigerated upon arrival. Best used in 60 to 90 days.

Order Form:

1. Organize the items by non-food/taxable and food/non-taxable to properly apply sales tax. See food item list next to order form box. (California orders only. Out of state are all non-taxable.)
2. Print legibly if sending this order sheet by fax or mail.
3. See page 22 for shipping choices to Alaska and Hawaii and out of Country.
4. Add $6.00 for shipping to California, Nevada, Oregon, Washington. For all other states, add $8.00.
5. Orders with *Mosto Italiano Wine Kits, wine equipment kits, wine barrels larger than 3 gallons, carboys, cases of bottles* and *floor corkers* ask for UPS ground shipping charge. This is the exact UPS charge for your shipping zone.
6. Bulky items such as full sacks of chemicals not listed in catalog are also subject to actual shipping costs.
7. Wine equipment such as grape presses and stemmer/crushers and large presses are shipped via truck, freight collect. Tanks will be charged for crating prior to shipping.

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

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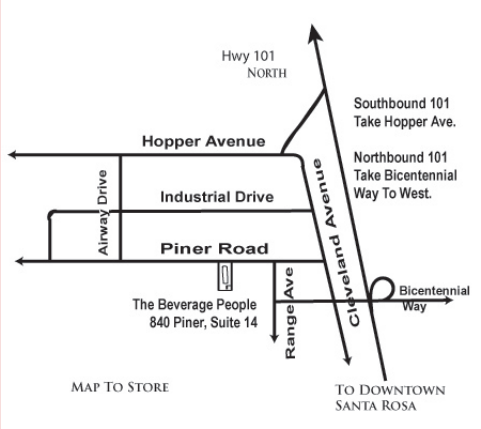

Our Hours: January through July :
T-F 10 - 5:30, and Saturday 10-5
Also Open on Mondays- August through December

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
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. 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 and processes. Space is limited, so call today. Class will meet Saturday, August 29. Bring a bottle of your wine to critique, class is held at the retail store.

Harvest Fair

Harvest Fair of Sonoma County. Contact fair office at 545-4203, Deadline for entries are usually the last week of August. Great opportunity for local winemakers to judge. Contact Bob Bennett, 433-4574 to be included on a panel. Note, as this is a local event, please deliver entries directly to fair.

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