



THE BEVERAGE PEOPLE

WINE & CIDER HARVEST NEWSLETTER



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ABOUT THE BEVERAGE PEOPLE

The Beverage People is a family run, locally owned business in Sonoma County. We hope you will make us part of your own fermentation family. We are primarily a local resource for the hobbyists of Sonoma County. We think of ourselves as an agriculture-based company, adding value to the local crops with education, quality ingredients, and necessary equipment for processing them into great wines and ciders. We also operate our website with nation-wide, competitive shipping rates and times. We strive to provide both quality supplies and unsurpassed support to ensure you have everything needed for world-class quality beverages at home.

If you haven't met us already in-person, let us introduce the staff.

Gabe Jackson **President and CFO**

Gabe is a Sonoma State University alumnus with a BA in History and BS in accounting. He is a CPA trained in financial statement audits and tax preparation. He has also spent considerable time working in the hobby world of home fermentation (beer, wine, cheese, etc) and as well as a stretch in commercial brewing at Moylan's Brewing Company. Under the guidance of homebrew pioneers Byron Burch and Nancy Vineyard, as well as industry expert Bob Peak, he became a Beverage People teacher of home brewing and cheese making classes. He is a BJCP certified beer judge, and has served in various volunteer positions with

local homebrewing and cheesemaking clubs including Treasurer, VP, and President. Gabe is one of the shareholders of the corporation.

Jane Jackson **Inventory and Shipping Manager, Vice-President and Secretary**

Jane is the VP and Secretary of our corporation. She is one dependable lady. That is why she is our inventory manager and she oversees all of our out-bound shipments. She is a mother, a maker, and the only person in the shop who has read "Inventory Accuracy: People, Processes, & Technology" by David J. Piasecki. No joke. Jane is also one of the shareholders of the corporation.

Nancy Vineyard **Co-Founder, Previous Owner, Managerial Consultant**

Nancy started making wine while a student at UC Berkeley in the 1970's. She worked at Wine and the People for several years as a cellar rat, helping Peter Brehm with his commercial winery. By 1978, she and her husband, Byron Burch, and another partner, started Great Fermentations in San Rafael and opened a second location two years later in Santa Rosa. As home brewing was legalized, the hobby grew exponentially and both stores thrived through the 1980's. Eventually, Byron and Nancy set out independently and leading to a name change to The Beverage People. Nancy began to play with cheesemaking in the late 1990's, convincing her partners that this was a fermentation hobby that was worthy of their attention. Most recently, she attended a two-day UC Davis course on Wine Filtration, and continues to lead Wheyward Bound (the local home cheese-

making club. Besides her work at The Beverage People, Nancy has taught numerous classes in all the hobbies. She continues to make wine at home as well as play with her puppy Sweetie and cat Sam.

Clare Speichinger **Associate, Merchandising Manager, SCOBY Rancher**

Clare has been improving our retail showroom since the day she joined the staff. She is also our "SCOBY rancher"---an avid kombucha hobbyist and mother to the "mothers" that are needed to ferment those magical elixirs. She has a degree in Biology and is a brewer, a wine/cider/mead-maker, and a volunteer for the Sonoma County HazMat Team in her spare time. Recently she attended a brewing short course on Intensive Brewing Science for Practical Brewing at UC Davis.

Alec Klassen **Associate, Web Content Developer**

Alec is a native of Santa Rosa and has been home brewing and practicing the fermentation arts since 2007. Traveling through Europe with his family imbibed Alec with a passion for all things fermented. He is a fan of English Bitters, Bohemian Lagers, and a good Alpine Swiss cheese. Alec got his Bachelor of Science degree from Oregon State University where he studied fermentation and brewing science. He joined The Beverage People in 2016. You can find Alec at our retail store working on our website, helping customers at the front counter, or waxing lyrical about his favorite yeast strains.

Kathy Laurie **Associate, E-mail Manager**

Kathy is great. After retiring from the work of running a family operated print shop with her husband, Bill, she joined the Beverage People as a part-time associate. She has been continually inspired and inspiring through her love of cheesemaking, in particular. She is a wine-maker as well. Through her commitment to our cheesemaking club, Wheyward Bound, she has become one of the most advanced home cheesemakers in Sonoma County. She manages our emails, ensuring we get our passion into print and share it with you all.

Ben Wright **Associate, Packaging**

Ben is the unseen hero who makes it possible for you to buy commercial products in small sizes. He is our packaging man. He leads a double life as a traveling musician when not on the job.



SMALL BATCH HARD CIDER

by Clare Speichinger

Here in Sonoma County there is an abundance of apples to make hard cider with in the summer and fall. However, a lot of people like to try their hand at fermenting apple juice in small quantities before advancing to five or ten gallon batches which takes more of an investment in apples, equipment, and time.

Small batches also give you the opportunity to try out different yeast strains, juice blends, enhancement products and ingredients (honey, fruit, oak, hops, etc.) to determine their contributions before applying them to larger volumes. If making apple cider vinegar is your goal, making hard cider is the first step. Small batch cider making is also logistically easier (less volume = less weight to move = less space needed and less work overall). Also, with such small investments in juice (\$5-10 per gallon), losing a batch isn't the end of the world. Larger batches have their advantages though in the long run as they tend to age better with less oxidation due to the smaller surface area to volume ratio. And at the end of it all, it is nice to have several cases of cider to enjoy.

The same rules apply when making small batches of cider (mead and wine too).

1. Start with the fermentation in a container larger than your volume of juice to be fermented to accommodate foaming.
2. Use 1 gram of yeast per gallon of juice.
3. Use yeast nutrients to avoid Hydrogen Sulfide (rotten egg smell) production.
4. After primary fermentation, make sure containers are topped-up (filled up to the neck, minimizing surface area in contact with air). See photo at the top of the next column.
5. Use sulfites to help prevent spoilage and oxidation while aging. See page 13 for specifics.
6. Test and adjust total acidity. See page 14 for specifics.
7. Use clean and sanitized equipment.
8. Take notes so that results can be repeated or avoided! *Cider* by Annie Proulx and Lew Nichols has a good cider log template.



BAD: The container on the left is not topped up. Large head space.
GOOD: The container on the right is topped up. Small head space.

Yeast Choice

There are many yeasts to choose from when making hard cider. Wine making yeasts are generally the go-to choice, but ale yeast can be used to make good cider too. Our favorite cider yeast here at the shop is *M2*; it is known for its expression of pineapple, citrus, and blossom notes and for accentuating volume in the mouthfeel. *Prise de Mousse (EC118)* is a Champagne-style yeast that can also be a good choice, but takes more of a 'hands-off' approach and does not add character nor body to the cider. We have also experimented with the *French Saison* strain from Wyeast, but surprisingly found that it produced little of the fruit and spice character that it is known for in ales. Another ale yeast that the staff here at The Beverage People agreed made a good fruity cider was the *London ESB* strain from Wyeast.

Other Ingredients and Enhancement Products

Small batch hard cider production lends itself to experimenting with interesting ingredients and enhancement products. A few that are worth a try are:

Oak products – Chips, Cubes, Staves, Powder, and Extracts can be added during or post fermentation to add subtle to intense flavors of spice, vanilla, coconut, apparent sweetness, etc.

Tannins – Can be added during fermentation, aging or pre-bottling. They are complex phenols that ideally add a structure and mouthfeel to hard cider but used in excess can lead to astringency. Good cider making apple varieties and juice blends contain tannins, found in the skin of apples. Store-bought juice varieties have little to no tannins and can greatly benefit from a tannin addition. Some products to try are *FT Blanc Soft*, *Tannin Riche*, *Tannin Complex*, *Tannin Refresh* or *Tannin powder*.

Fruits – Clean raspberries, cherries, pears, etc. can be added directly to the fermentor in a mesh bag. The use of sulfites will help to suppress contaminants. See page 9 for our variety of seedless fruit purees.

Honey – Also boiled lightly in water to sanitize; added pre-fermentation. Ciders made with honey are called Cysers. See page 9 for instructions on making Cyser.

Hops – Can be boiled in water to contribute bitterness to cider or can be added post fermentation just prior to bottling for an aromatic contribution. Some new fruity hops to try are *Huell Melon*, *Galaxy*, and *Lemon Drop*.

Perceived Acidity

Total or Titratable acidity can be cheaply and easily measured in juice or in hard cider with an acid test kit. Note that this is different than the pH of a juice or hard cider. Titratable acidity determines how bright or dull a juice is perceived to be, based on the amount of acid it contains. When a juice is out of range, it can be increased by adding a food grade acid (like malic or tartaric) or neutralized with potassium bicarbonate. Store bought juice will generally be low in acid and will benefit from an adjustment upwards.

Small Batch cider making is a great way to get into the hobby. High quality juice is readily available year-round and can give you insight into the production and ingredients that can be valuable if and when you decide to ramp up production. Come by the shop and we can help you get started!



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 .

You will need the following:

1. Siphon Hose and Racking Tube
2. Hydrometer and Test Jar
3. Acid Testing Kit
4. Sulfite Test
5. Crusher or Crusher/Destemmer
6. Press or Pressing Bag
7. Thermometer
8. Scoop with Handle
9. Funnel
10. Bottle Filler
11. Small Bucket or Pail
12. Punch Down Tool
13. Mesh Colander or Strainer

For every 75 lbs. of grapes:

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

INGREDIENTS

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

RED WINE PROCEDURES

- 1 **Crush the grapes to 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 (SO₂) level between 50 and 130 parts per million (ppm). If you plan to add a Malolactic culture, keep this addition below 50 ppm. See pages 12 & 13 for sulfite instructions. 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 SO₂. If using [Lallzyme EX®](#) enzyme, wait 15 or 20 minutes after sulfiting, then add enzyme.
- 5 **Unless you have found it necessary to add more than 65 parts per million SO₂ in step 4, yeast should be added immediately.** If using more than 65 parts per million SO₂, you must wait six hours before doing so. Add 1 -2 grams of dry wine yeast per gallon evenly across the surface of the crushed grapes, now called “must”. Stir it in thoroughly after eight to twelve hours. Also, begin your nutrient program according to the instructions on page 10.
- 6 **The must should be stirred twice a day until fermentation begins.** The beginning of fermentation is obvious, as the grape skins are forced to the surface, forming a solid layer, called a cap. Once the cap has formed, mix it back down into the fermenting juice twice a day using your hand or a stainless steel punch-down tool until it is ready to be pressed. If using [FT Rouge Soft Enological Tannin](#) and/or [Opti-Red® Specific Inactivated Yeast](#), sprinkle them over the must and mix in at the first punch-down.
- 7 **Throughout fermentation, the temperature of the must is usually between about 60 and 75°F.** For better color extraction from the skins, it is helpful to allow the temperature to rise at least once to the 80-90°F range. The fermentation itself generates some heat, which helps warm the must along with warm fall weather. If it is late in the season you may need a heater.
- 8 **When the wine has reached 0° Brix, the grapes should be pressed to separate the wine from the skins.** This is usually about 1-2 weeks of fermentation at 70-80°F. During pressing, collect the wine into a bucket under the press and funnel the wine into secondary fermentors. Attach fermentation locks, and allow the containers to settle until all visible signs of fermentation have ceased- several days to a week or so. Top full when all activity ceases even if you have to add wine from another batch, or buy a similar wine. Remember, you get to drink it later.



Winemaking Equipment from crush to bottle.



Crushing and stemming your grapes.

Time Line for Red Wine Fermentation

5 to 14 days	1 to 2 weeks	after 1 month	after 4 to 6 months	after 6 months	before new harvest
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, add oak or cellaring tannins, if desired.	Rack off lees again, add sulfite and store in cool place for aging, topping and sulfiting every couple months. If desired, add additional oak.	Rack off lees, add sulfite, fining or filter, and keep containers topped up.	Rack to bottling container, add sulfite, cork and store.

9 Add a Malolactic culture (optional) to the wine which, in the case of direct pitch strains like [Enoferm Alpha™](#) or [Viniflora™](#), is added to the secondary fermentors after pressing when the brix is around zero. If you inoculate for ML, test the wine to be sure it is complete after 3 weeks..

10 If no ML culture is added, when the wine has begun to clarify in 1-2 weeks, rack the wine off the gross lees into clean, sanitized storage containers (glass, PET plastic, 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 and wait until the ML fermentation is complete before you rack off the lees.

11 After one month, rack the wine away from the lees again, add sulfite to 20 or 30 ppm, and keep in topped up containers for four to six months. You must top up barrels every couple weeks, and visually inspect the carboys. This is a good time to add oak alternatives such as sticks or cubes. Add sulfite every few weeks, testing approximately every 2 months to avoid over or under sulfiting the wine.

12 After 4 to 6 months, rack off the lees again. Raise the sulfite to at least 20-30 ppm and store in a cool place for aging. If ML fermentation has not completed, consider adding [Lysozyme Lyso-Easy](#) to stabilize the wine. If using [Tannin Riche Enological Tannin](#) from French oak, mix it with the wine during a racking at least 3 weeks before bottling.

13 Usually during the summer, just before you need your storage containers for the next year's crush, carefully rack the wine to a sanitary bottling container, then siphon into bottles and cork them. Keep the bottles neck-up for one week to allow the corks time to expand, then move the cases to their side or upside down for storage. Bottling time is your last opportunity to make sure the wine will be bottle stable, so test and adjust the sulfite to at least 20-30 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 of additional aging.

White Wine Procedures, see next page.



Crushing and De-stemming the 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 (SO₂) level between 50 and 120 parts per million (ppm.)
Note: The amount needed will depend on the condition of the grapes, with moldy grapes getting the most concentrated dose. Very clean grapes may get by with little or no sulfite.
- 5 **Stir in pectic enzyme (pectinase) at the rate of one ounce to every 200 lbs. of grapes, or use Lallzyme® Cuvée-Blanc.** Place the crushed grapes in a covered container to macerate from 2 to 12 hours. If left to stand longer than 2 hours at this stage, the crushed grapes should be refrigerated.
- 6 **The grapes are then pressed to separate the juice from the skins.** Funnel the juice into topped up containers, cover, and let stand for approximately 24 hours.
- 7 **Siphon the clear juice away from the layer of settlings (called "gross lees") into a glass, PET plastic, stainless steel, or oak fermentor which is filled no more than 3/4 full.** If using FT Blanc Soft Enological Tannin, mix it with the juice during the transfer to the fermentor(s). This is also the time to add Opti-MUM White® Specific Inactivated Yeast if desired. Yeast should be added at a rate of 1 gram per gallon, and a fermentation lock attached to the fermentor. Add nutrients according to the instructions on page 10.
- 8 **When visible signs of fermentation end, the wine must be racked off the lees, and placed in topped up storage containers (glass, PET plastic, stainless, or oak).** Add sulfite, 30 - 40 ppm. and let stand for a month.
- 9 **Rack off the lees. If the wine isn't clearing, fine with Sparkolloid or a Bentonite slurry.** Follow the instructions on page 15. Clarity occurs by three months. 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.** For oak flavor add oak sticks or cubes. If additional high-quality French oak character would benefit your wine, use Tannin Riche enological finishing tannin.
- 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 to determine how much SO₂ is needed to bring the level to 30-35 parts per million.
- 12 **Siphon into bottles and cork them.** Consider adding a decorative heat shrink capsule and label (see page 23). If you wish to sweeten the wine, do so with simple syrup (two parts sugar to one part water, boiled), and add 1/2 tsp. Sorbistat per gallon to inhibit any remaining yeast. White wines may be enjoyed 6 weeks after bottling.

Time Line for White Wine Fermentation

1 to 2 weeks	1 month	2-4 months	In the spring
Active yeast fermentation of juice in primary fermentors about 3/4 full.	Rack finished wine to clean fermentors, topped full. Settle out lees. Add sulfite.	Rack off lees and fine or filter. Add sulfite and cold stabilize. Oak additions.	Rack to bottling container, add sulfite, fill and cork bottles.

Fruit Wine Procedures, see page 8.



Pressing white grapes.

Enhanced Winemaking Products Chart

	Name	Description	Purpose	Time of Application	Use Rate	Packages Available
Nutrient	Go-Ferm	Nutrient from inactivated yeasts	Yeast rehydration support	During yeast rehydration	1.25 g per gallon of must	3 oz.
	Fermaid K	Complete nutrient mix with minerals and vitamins	Yeast nutrition during fermentation	1/3 and 2/3 of fermentation	1 g per gallon of must, twice	3 oz., 1 lb.
	DAP	Simple nitrogen nutrient	Nitrogen supplement beyond Fermaid K	Near beginning of fermentation	1 or 2 g per gallon, based on nutrient needs	2 oz., 8 oz., 1 lb.
	Opti Red	Yeast derived nutrient, high in polysaccharides	Red wine color retention, smooth character	At first punchdown	100 g per 1,000 lbs. of must	50 g
	Optimum White	Yeast derived nutrient, rich in glutathione and polysaccharides	Inhibits white wine browning, preserves aromas	While racking juice	1 g per gallon of juice	50 g
	Acti ML	Inactivated yeasts rich in amino acids	Rehydration nutrient for ML bacteria for red wine	While adding ML bacteria	50 g for 60 gal	50 g
	Opti ML Blanc	Formulated from inactivated yeasts to meet peptide needs	Nutrient for ML bacteria for white wine	24 hours before adding ML bacteria	20 g per HL (26 gal)	50 g
	Pectic Enzyme	Pectinase enzyme preparation	Improve juice yield	At crusher	1 oz. per 200 lbs. of fruit	1 oz.
	Lallzyme EX	Pectinase with hemicellulases	Red wine juice yield and pigment extraction	At crusher	10 g per 1,000 lbs. of grapes	10 g
	Lallzyme Cuvee Blanc	Pectinase with glycosidases	White wine juice yield and aroma enhancement	At crusher	10 g per 1,000 lbs. of grapes	10 g
Tannin	FT Rouge Soft	Quebracho wood tannin product	Soft round body for red wines	At first punchdown	50 to 250 g per 1,000 lbs. of red grape must	100 g
	FT Blanc Soft	Gall nut tannin product	Protects white wine against oxidation and enhances mouthfeel	While racking juice off gross fruit lees	1 to 3 g for every 5 gal.	50 g
	Tannin Complex	Oak and quebracho wood tannin product	Protects against oxidation and improves color stability in aging	First or second racking after primary fermentation	1 to 6 g per 5 gallons (less near bottling)	50 g
	Tannin Refresh	Untoasted French oak tannin product	Imparts a light oak nuance without smoky or toasty notes	After malolactic fermentation	½ to 4 g per 5 gal.	10 g, 100 g
	Tannin Riche	100% toasted French oak tannin product	Finishing tannin to impart mild palate character, oakiness	Up to 3 weeks before bottling	½ to 1 g (whites) or ½ to 3 g (reds) per 5 gal.	10 g, 50 g
Oxidation	Flashgum R	25% solution of Gum Arabic	Prevents colloid precipitation, imparts sweetness without sugar	Last product addition before bottling	1.5 to 5 mL per gal.	4 oz., 1 L
	Reduless®	Yeast hulls rich in copper	Removes reduced sulfur aroma compounds	As soon as odor is detected in finished wine	0.4 to 0.6 g per gal.	10 g, 100 g
	Noblesse®	Yeast derived treatment product	Use with reduless for sulfides, or alone for alcohol burn	During mixing or racking of wine	1 g per gal.	2 oz.

FRUIT WINE PROCEDURES

Use the following procedures for 6 gallons of Berry or Stone Fruit Wines:

Smash sound, ripe berries, or pit stone fruit, tie loosely in a straining bag and place in open top fermentor.

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

Add the remaining water, Yeast Nutrient, Pectinase and Tartaric Acid. Add 5 crushed Campden Tablets.

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. Once fermentation begins, stir or push the pulp down into the liquid twice a day.

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

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

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

For bottling, rack into an open container, and add 3 crushed Campden Tablets. Sweeten with sugar syrup to taste and add 1/2 teaspoon Sorbistat per gallon to stabilize. Siphon into bottles,

Berry, Plum, or Cherry Wine Recipe

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

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

EQUIPMENT NEEDED FOR 6 GALLONS OF FRUIT WINE OR CIDER

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

Optional:

1. Hydrometer (Saccharometer) and Test Jar
2. Acid Testing Kit
3. Keg System for sweetened, sparkling wine or cider.

BOTTLING CHOICES

A: Dry and Still.

Bottle with a cork in a wine bottle. For still, dry wine, follow the White Wine bottling procedures on page 6.

B: Dry and Sparkling.

Bottle like beer with 1.2 oz. per gallon of Corn Sugar in a beer bottle or champagne bottle with a crown cap seal.

For sparkling, dry wine, follow the beer priming and bottling procedures at the website: <http://www.thebeveragepeople.com/bottling-instructions.html>

C: Sweet and Still.

Sweeten with sugar, add sorbate to stabilize, and bottle like wine with a cork in a wine bottle. For still, sweetened wine, first rack the wine to a bottling bucket. Sweeten to taste with a simple syrup made by boiling cane sugar with a small amount of water, cool it, and stir into the bottling bucket. Add potassium sorbate granules at a rate of 1/4 oz. in five gallons to stabilize and prevent refermentation and unintended carbonation. Follow the white wine bottling procedure.

D: Sweet and Sparkling.

Sweeten with sugar, add sorbate to stabilize, force carbonate in a keg, counter-pressure fill into beer bottles with crown caps. For sweetened, sparkling wine, follow the guidelines again for kegging at: <http://www.thebeveragepeople.com/pdf/webbeerpdf/Kegging.pdf> with the following variations. Rack the wine into a stainless steel soda keg, sweeten and add sorbate as in "C" above, then purge the keg with carbon dioxide. Chill and force carbonate for a day or two. Chill the needed number of sanitized 12-oz. or 22-oz. beer bottles. Fill them under pressure with a counter-pressure filler and top with crown caps. You should now have shelf-stable, sweetened, carbonated wine (or cider).

For conditions A, B, and C, you can use a conventional bottle filler to fill your bottles. Use either the single bottle filler or a three- or five-spout filler (p. 17). Clean and sanitize, begin gravity flow to the filler, with a racking cane if necessary, and fill. For condition D, you will need a special-purpose counter-pressure filler and a draft beer setup. (see <http://www.thebeveragepeople.com/pdf/webbeerpdf/Kegging.pdf>).

CIDER PROCEDURES

Crush the apples. Use only sound, fully ripe fruit. We rent an electric grinder and press, as listed on the back cover.

Stir in Pectinase to accelerate break down of the fruit pectins. Use 1/2 oz. per 100-150 lbs. of fruit, with a contact time of 2-4 hours, to achieve better extraction at press.

Press to separate the juice from the skins and other solids. Funnel the collected juice into closed containers, filled no more than 75% full. Add 1 tablet crushed Campden Tablets per 2 gallons of juice. Settle the juice and wait for the sulfite to dissipate - 6 hours.

For each 5 gallons of juice, add 1-2 teaspoons of Fermaid K yeast nutrient. Stir and add 5-10g of Yeast. Attach a fermentation lock, and allow fermentation to proceed.

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

During the racking at the end of fermentation, add sulfite

using 1 crushed Campden tablet per 2 gallons.

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

Carefully rack away from the lees. If your cider is going into extended bottle storage, sulfite by adding 1 crushed Campden Tablet per 2 gallons. Beverages such as this may often be enjoyed within two months of bottling. If you plan to drink some that soon, or plan to carbonate using yeast, don't add additional sulfite to that portion at bottling time.

Sweetening

We find that adding sugar back to the cider at bottling time makes for a very enjoyable final product that tastes more "apple-y".

Bottling your cider still and sweetened is the simplest way to do this. Kegging will open up the possibility of serving a sweetened and sparkling cider. See the previous page for a discussion on Bottling Choices.

Cider Ingredients

100-150 lbs. Apples
or 5 gallons of juice
1 oz. Pectinase
2 teaspoons Fermaid K
10 g M-2 Yeast
25 pack Campden tablets

Brix: 10-13

Total Acid: .6-.65%

MAKING CYSER

Apple juice and honey combine to make a wonderful fermented beverage called Cyser. The blending of compatible honeys and apple juices is essential if you want a balanced cyser. Neutral flavored honeys, such as clover or star thistle, are best.

Choose apples varieties, or blends of apples, that have medium to high acid levels and pronounced aromatic properties. Apples with good acidity are Jonathon, Winesap, Gravenstein, Granny Smith and Pippens. Fermenting cyser at cooler temperatures of 50 - 60 degrees F, like a white wine or lager, seems to preserve more of the "apple-y" character.

Directions:

1. Heat the water in your boiling kettle until warm (170 degrees F), turn off the heat and stir in the honey until dissolved.

2. Heat the honey solution to boiling, add Irish moss and boil for 10 minutes; use a spoon to remove the scum that forms on the surface.

Ingredients for 5 gallons of Cyser

4 3/4 gallons Gravenstein Juice (or apple blend)
7 1/2 pounds of Honey
1/2 gallon Water
2 oz. Beverage People Mead Nutrient
1/4 tsp. Irish Moss
Acid Blend to bring total acid level to 0.5%
10 g. Prise de Mousse Wine Yeast
Campden Tablets for sulfiting after fermentation

Starting Gravity: 1.092 (23 Brix)

Total Acidity: 0.5%

3. Stir in mead nutrient and cool to room temperature.

4. Transfer the honey solution to sanitized glass fermentors and add apple juice. Test for sugar and acid levels and adjust with acid blend as needed.

5. Add yeast to the surface of the must. After 4 hours, stir or swirl the fermentor to mix in the yeast.

6. Ferment for two to three weeks at room temperature until visible signs of fermentation have ceased.

7. Rack cyser off of the sediment into a sanitized 5 gallon glass or PET plastic fermentor and add 3 crushed campden tablets. Age the cyser under an airlock for 2 - 3 months. Optionally, cold stabilize by placing the carboy in a refrigerator for 2 - 3 weeks prior to bottling to help clarify the cyser.

8. Bottle the cyser in beer bottles, champagne bottles or wine bottles and age for additional 3 months. Optionally, adjust final sweetness by adding Wine Conditioner (FN35) to taste. Alternatively, you can add a sugar syrup and potassium sorbate.



Seedless Fruit Puree

Get creative with seedless purees from Oregon. Full of aroma and a deep rich taste and color. Use two cans to flavor a mead or four cans to make wine. Finish it with the addition of a simple syrup just to smooth the flavor and intensify the berry taste. 49 oz. cans available in Passionfruit, Raspberry, Blackberry, Apricot, Sweet Cherry, Tart Cherry, and Plum.

JUICE TESTING for SUGAR, ACID, pH & NUTRIENTS

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

In addition to the three tests mentioned above you may also want to find out the level of nutrients in your juice. Adequate nutritional levels help ensure a healthy yeast fermentation, and also help avoid problems such as: stuck fermentations, or the rotten egg smell of Hydrogen Sulfide (H₂S.)

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.

There are no home tests for nutrients, therefore you will want to crush your grapes and deliver a settled sample of juice to The Beverage People. A 250ml bottle is the minimum volume requirement for most chemical analysis. We, at The Beverage People, are proud to partner with Signature Wine Labs and Gusmer for testing. For Signature Wine Labs or Gusmer testing, drop off your sample and pay in advance at The Beverage People. By sharing results with our staff, we can advise you on actions to take with your results.

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 use one of two storage methods:

1. Freeze the juice in the sample jar (with the lid loose). Or, 2. 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. Talk over sampling

and shipping with your chosen laboratory before you start.

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.

The yeasts are also divided into three levels of nutritional need: Low, Medium and High-Very High (see table on page 11). 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: 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 and Fermaid K per gallon of juice when 1/3 of the sugar has been fermented.

Yeast Nutrient Needs				
YANC LEVEL		Low	Med	H-VH
	LOW	A	B	E
	MEDIUM	C	D	E
	HIGH	C	C	D

Nutrient Programs

NOTE: When in doubt, use Program D.

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.

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.

Which Nutrient...When?

Go-Ferm is an important nutrient used when building a yeast culture before the primary fermentation. Do not use during fermentation. See the web-site or package for complete instructions for use.

Opti-Red® (yeast derived nutrient) is added at the time of the first punchdown for red grapes.

OptiMUM-White (yeast derived nutrient) is added to white grape juice after racking off of the gross fruit lees near the beginning of fermentation.

Fermaid K (yeast nutrient) is the go-to all-purpose nutrient for wine fermentations. Use at the rate of 1 g. per gallon at 1/3 drop in original brix. Repeat at 2/3 drop. 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 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 like copper sulfate.

YEAST RECOMMENDATIONS

Locate your grape variety or style, read about the yeast characteristics for the recommended strain(s).

To find fermentation specifics, read down	Assmanshausen	BM 4X4	CSM	Epermay 2	French Red (BDX)	ICVD21	ICV D254	M-2	Muse	Melody	Prise de Mousse	QA23	RP15 "Rockpile"	RC212	Steinberger	Uvaferm 43	WS
Varietal	Pinot Noir	San-giovese, Nebbiolo	Bordeaux	Zinfandel	Bordeaux	Big Reds	Chard Red Rhones	Chard, Cider	Big Reds	White, Rosé	White, Red	Dry Whites	Syrah	Pinot Noir	German White	Restarts, Zin, Late Harvest	Pinot Noir, Zinfandel
Use for Cider				YES				YES	YES		YES						
Fruit Wines	YES			YES							YES	YES		YES	YES		
Enhances Fruit				YES		YES	YES	YES	YES	YES		YES					
Enhances Mouthfeel	YES	YES				YES	YES	YES		YES		YES				YES	
Sensory Effect *	EVC	EVC	EVC	EVC	EVC	Estery	EVC	Estery		Estery	Neutral	EVC	Complex	EVC	EVC	YES	Complex
Reduces Vegetal Character	YES		YES	YES				YES		YES							
Stabilizes Color	YES	YES	YES		YES	YES	YES		YES		YES		YES	YES			YES
Cold tolerant				YES			YES			YES	YES				YES		
Use to Restart											GOOD					EXCEL-LENT	GOOD
Temperature Range F.	68-86	61-82	59-89	50-80	64-86	59-90	50-85	59-86	59-77	50-82	50-86	59-90	59-90	68-86	40-70	55-95	60-86
Vigor	Slow	Average	Average	Average	Average	Average	Fast	Fast	Average		Fast	Fast	Average	Average	Slow	Fast	Fast
Alcohol Tolerance %	15	16	14	15	16	16	16	16	16	17	18	16	17	16	14	18	18
Nutritional Need **	Medium	High	High	Medium	High	Low	Medium	Medium	High	Medium	Low	Low	Low	High	Low	Low	Low
Reaction to Oxygen ***	Medium		Low			High	Medium				High	Low	Low				Low
Comments	Enhances spiciness	Blend which includes BM45	Alternate to BDX	Can be stopped	Ideal Fermenter	Bold Flavors Mouth-feel	Complex flavor Mineral Aromas	Complex	Non H2S producing	Increases Total Acidity	Late Harvest	Aromatic	Red fruit, Mineral tones	Good Color	Easiest to Stop Fermenting	Restarts Very Well, Red Fruit Character	For High Brix Juice
10 gram, 4 oz	WY38, WY37	9252, 9253	WY52, WY56	WY22, WY12	WY30, WY20	WY41, WY16	WY44, WY33	WY50, WY49	9233	9232	WY23, WY13	WY65, WY67	WY24, WY42	WY55, WY57	WY29, WY19	WY28, WY18	WY11, WY07

Notes to Table

*Sensory Effect: EVC = Enhances Varietal Character, Estery = Enhances Fruitiness, Neutral = No Enhancements
 ** See page 10 for Nutrient recommendations, especially for Medium and High Categories.
 *** Also try additions of Oxygen with active stirring during fermentation to yeasts that react to O₂ additions.

SULFITE, GRAPES and WINEMAKING

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

After more than 35 years of teaching home winemakers the importance of adding sulfite to wine and monitoring the results with various testing methods, we are concerned that people are still not testing or scheduling SO_2 additions often enough.

While we have seen improvement during these years, many wine samples are still reported 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 prune and harsh. To avoid this you need to understand the basics of why sulfite works so well to protect your wine.

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

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

This is why it is so important to frequently measure your free sulfite. No matter how high your total sulfite (within reason), it is only the free sulfite number that really counts. Don't just guess and toss some sulfite in. Analyze it first, then add it. To this end, we offer some advice on ways to keep up with testing your SO_2 .

Methods for Testing Free SO_2

Aeration-Oxidation(AO) Method for Free SO_2

This is the original primary laboratory method for sulfite measurement in wine that helps define what "free" SO_2 means. In the AO method, a wine sample is placed in a flask and phosphoric acid is added to force the sulfite ion into molecular SO_2 . A small air pump pushes air bubbles through the sample. Since sulfur dioxide is a gas, it dissolves in the air stream and transfers to a trapping solution. In the trapping solution, hydrogen peroxide oxidizes the sulfur dioxide into sulfuric acid. Also in the trapping solution is an acid-base indicator that changes color as the sample gas accumulates. After the 10 or 15 minute transfer period, the trapping solution is titrated with sodium hydroxide solution to measure the acid formed. The free sulfite level can be calculated from the titration results.

The Beverage People supplies reagents to hobbyists who have Aeration-Oxidation test apparatus. Please note that while we can sell you a 250 ml bottle of 25% phosphoric acid for use in your home apparatus, we cannot ship it. If you are outside the area, look into sourcing this reagent locally.

Ripper Method for Free SO_2

We sell the 10 pack box of Titrets, based on the Ripper method, but they are only recommended for white wine. The Ripper method is an iodine titration that is often faster, easier, and cheaper than A/O. It is limited by the chemistry involved. Any substance that reacts with iodine—including some tannins—will be measured as sulfite. Further, the acidification of the sample for the titration tends to release some sulfite bound to anthocyanins (color compounds) in red wine, making it appear "free" when it is not.

These Ripper limitations have been largely overcome through a combination of equipment and techniques from Vinmetrica. That company produces proprietary instruments for sulfite analysis (SC-100A, TE162, p. 16) and for sulfite plus titratable acidity (SC-300, see p. 16) that rely on amperometric titration with iodine instead of a visual endpoint or a straight oxidation-reduction (redox) detection. Allowing very rapid titration to overcome release of additional sulfites and showing a very sharp endpoint on the meter to improve precision, they have reduced the discrepancy between AO and Vinmetrica Ripper to only 2 to 3 mg/L (ppm) for most wine samples. Those differences are small enough that the convenience and ease of use will make the Vinmetrica meters attractive choices for many users.

Laboratory Testing

If you would rather not do sulfite analysis yourself but you want to do a good job keeping up with your levels, a wine testing laboratory can do it for you. Find a commercial lab or perhaps a university

lab near you to minimize shipping of samples. For those of you who live in Northern California Wine Country, we can make it very easy for you. Come by the store and pick up a free sample vial (or use your own screw cap container of 60 ml or more) and fill it all the way up with wine. You don't want to lose sulfur dioxide gas into the headspace of a partially-filled container. Bring your vial back full and pay for the free SO_2 test here at the store. Our lab services partner, Signature Wine Laboratory of Santa Rosa, will pick up the sample and will test it using approved techniques. We also partner with Gusmer Enterprises, Inc. of Windsor, which offers two testing panels for home winemakers on their FOSS WineScan, If you authorize them to (which we recommend) they will email us a copy of your report when they email it to you as well. Give us a call if you would like to discuss your results!

Scheduling SO_2 Additions

Initial sulfite may be added at 50-65 ppm to grapes or juice that is free of rot or mold. The presence of a lot of mold, or grapes in otherwise bad condition, might require twice that amount. Under average conditions the information that follows should keep about 20 to 30 ppm of free SO_2 available throughout the wine's cycle of production through bottling. If you plan to use ML bacteria, pre-ML sulfite additions should be kept below 50 ppm.

After ML fermentation is complete add 30 ppm, and five days later add 30 ppm again, and AGAIN one week later. Now get the wine tested for free SO_2 . The test results may surprise you, as the SO_2 you have added may have been dissipating at a rapid rate initially.

Above pH 3.5, you will notice that the amounts of free sulfur dioxide required become quite high. It is best to lower the pH by adding tartaric acid early in the fermentation cycle.

Continue testing every 6-8 weeks, adding SO_2 as required to keep at least 20-30 ppm. available in the wine.

Sources of SO_2

SO_2 is available as Campden tablets, effervescent Inodose metabisulfite tablets and as powdered 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. Crush the tablet to a powder to add it.

The 2 gram Inodose tablets add 528 ppm per gallon or 9 ppm per 60 gallons. The 5 gram Inodose tablets add 1320 ppm per gallon or 22 ppm per 60 gallons. The tablets can be dissolved in water to accurately dose carboys. Metabisulfite powder is added in a liquid preparation 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.

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 sta-

bility in wine, but pH has an important effect on how much free SO₂ is needed in order to provide that amount, and this is why both pH and SO₂ need to be tested.

REGARD THE TABLE OF MOLECULAR SO₂ BELOW. The amount of free SO₂ 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 SO₂, or slightly more, present in the wine during storage and bottling.

SIMPLIFIED SULFITE ADDITIONS

Using Sodium or Potassium Metabisulfite Powder

Prepare a 10% Solution

Dissolve 100 g metabisulfite into 1 L distilled water. Stopper and use in 3 months or replace.

Measure by weight or use a 4 oz package minus 1 level teaspoon.



For 5 gallons add 10 ml

Use a 10 ml graduated syringe

For 30 gallons

add 60 ml

For 60 gallons

add 120 ml

Use a 100 ml graduated cylinder



Molecular SO₂ 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

Preparing Metabisulfite Solutions

10% 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. When adding your sulfite additions make sure you measure carefully.

Replace your solution every 3 months.

10% Solution of Metabisulfite

(Add ppm SO₂ to desired amount.)

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

3% Solution

Dissolve four ounces of potassium metabisulfite powder, in one gallon of distilled water. This is a weaker solution than the 10% solution given above. However, at this concentration, the solution is still quite strong and should be labeled: poison.

Replace your solution every 3 months.

3% Solution of Metabisulfite

(Add ppm of SO₂ to desired amount.)

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

Removing Excess SO₂

If you ever need to lower your SO₂ due to a mistake in calculation try splash racking or stirring vigorously to aerate. If the free SO₂ is still too high do the following: for every 10 ppm free SO₂ 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 - any more than this and the wine will oxidize and lose its flavor.

Please Note: Avoid confusing the above two solution strengths. If you have a scale that weighs in grams, and have access to a pH meter, you should use the 10% solution instructions. Have on hand Pipets or Syringes 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, with household measuring spoons.

HOME WINE LAB TESTING: SUGAR, pH, ACID and Free SO₂

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, pH, Acid and SO₂ are readily addressable with home testing techniques.

SUGAR There are three principal methods for measuring sugar content at home: a refractometer, a hydrometer, or an AIM® kit. To make a harvest decision in the vineyard, the refractometer is the clear choice. Using the refractometer is very easy. First,



calibrate it with a few drops of 20° brix reference solution. Then rinse the prism with distilled water and dry it with lens paper or a clean paper towel. Squeeze the juice of one grape onto the prism, close the cover, and point the refractometer at a bright section of sky. Read the brix level, write it down, and go on to measure another grape until you have taken a representative sample of your crop. Be aware that you may estimate a little high, since you will probably not sample the immature, under-ripe, and second crop grapes that may find their way into your picking bins on harvest day. For a more thorough sample, collect 20 to 100 grapes in a zip-lock bag, crush them with your fingers, and measure the brix level of the resulting mixed juice.

Once fermentation begins, the refractometer can no longer be used, because alcohol confounds the refractive index measurement upon which the sugar reading is based. So, it is time to turn to your hydrometer. Originally invented by Hypatia of Alexandria, the hydrometer has a 1500-year history of reliable service. Gently place the hydrometer in a plastic or glass measuring jar (which minimizes the amount of sample needed), then fill the jar until the hydrometer floats. Spin it gently to free any attached bubbles, then note the reading at the liquid level on the hydrometer

stem. Most hydrometers are calibrated in Balling (which is the same as brix), specific gravity, and potential alcohol. Note that the third scale in no way measures alcohol directly—it is just a calculated estimate of alcohol potential based on a measurement of sugar content. Continue to take readings periodically as your wine ferments until you get to zero or below, indicating the end of fermentation.

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

pH Wine pH is of interest primarily as a stability factor. As displayed in our molecular SO₂ table (see page 13), the effectiveness of free sulfur dioxide in protecting wine is strongly dependent on the pH. The lower the pH value, the more stable the wine in the long run. While low pH wines also taste sharper than high pH wines, the real driving force for flavor is TA (Titratable Acidity)—not pH. That fact highlights the value of doing both tests on your must and wine: TA for flavor and pH for stability.



If you use the Milwaukee MW102 pH Meter (shown above) or Vinmetrica SC-300 (shown top right) for measuring TA, you can record the initial pH value of your wine at the same time.

Another pH measurement option at The Beverage People is a hand-held pH meter. The Waterproof pH Testr 20 from Oakton that has the feature of a watertight housing with 0.01 pH resolution. All pH meters, portable or benchtop, require cali-



bration prior to use. Add our buffer set for a true two-point calibration for any of these meters. Calibrate with the pH 7 first, finishing with pH 4. That sequence maximizes the precision in the area of wine pH—at or below pH 4. After rinsing with distilled water, store the electrode in Storage Solution.

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

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

At The Beverage People, we offer several home tests for TA. The most pop-



ular is the Country Wines (see above) titration kit with phenolphthalein indicator and sodium hydroxide titrating solution. This is based on the primary lab procedure for the same test, which we also offer (see above). Executed carefully at the kitchen table, it can give precise and accurate results on white wine. Because the visual

Wine Lab cont. page 15

Wine Lab continued from page 14

endpoint of the titration is pink, many users have a bit more difficulty seeing the endpoint in grayish-pink “red” must. If you use this kit for newly crushed red grapes, take your juice sample quickly, before the full red color develops.

Our other two TA methods use full laboratory-scale equipment. The Indicator Method Titration Kit uses a Class A buret to add measured amounts of 0.1 N Sodium Hydroxide solution to a wine sample. The indicator method uses the pink color change of phenolphthalein to determine the endpoint and is subject to the same red-wine limitations as the Country Wines kit. The pH Meter Method, on the other hand, use a digital pH meter for endpoint detection. That meter is unaffected by

the sample color. Even finished, dark red wines can be accurately measured for TA with this system. Detailed instructions are included with both kits.

The Vinmetrica SC-300 uses the pH meter method for titratable acidity with a digital pH meter. It has the additional capability, however, of running a separate free SO₂ measurement as described in the next section.

FREE SO₂ As described on page 12, the Titrets kit, employing the Ripper method, is the simplest test for free sulfur dioxide. Unfortunately, it is only recommended for white wine and is not especially accurate even then.

More advanced systems for the Ripper method are produced by Vinmetrica.

The SC-100A uses a platinum electrode for an amperometric titration with a digital endpoint. Noting the volume of titrant dispensed to reach the endpoint, the user can calculate the free sulfur dioxide level. The SC-300 meter uses exactly the same electrode and method for the measurement of free SO₂ and has the further advantage of incorporating a fully functional digital pH meter and pH electrode. That means that the combined system can do all of the testing described here under pH, Acid, and Free SO₂, providing a comprehensive solution for home winemakers who want to set up a compact laboratory.

Labware continued on next page

PROCEDURES FOR FINING

Fining Agent	Rate of Use	Best Used For	Preparation	When	Code - Size
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.	FN06 - 1 oz FN05 - 1 lb
Bentonite	1/4 cup of slurry per 5 gallons (read below)	All wines	Slurry with juice or water in blender.	Rack in 1-2 weeks. Allow 3 weeks to settle before bottling.	FN32 - 2 oz FN11 - 1 lb
Isinglass	1 Tablespoon / 5 gallons	White wines that haven't clarified with Sparkolloid.	Soak in 2 Cups water with 1/2 tsp. Citric Acid for 30 minutes. Add to wine.	Prior to a racking.	FN07 - 1 oz
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.	FN03 - 1 oz FN01 - 1 lb
Polyclar (PVPP)	2.5-12.5 g / 5 gallons	White wines to remove oxidation and reduce bitterness.	Thorough mixing required. Fluffy, difficult to rack off cleanly.	Before, during or after fermentation.	FN22 - 1 oz FN21 - 1 lb
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.	
Non-Fat Milk	100-250 ml / 5 gallons	White wines to reduce bitterness, adds sweetness.	Follow with Bentonite Fining.	Rack after 4 days one month prior to bottling.	
Whole Milk	100-250 ml / 5 gallons	Reduce harshness, absorb aldehydes.	Follow with Bentonite Fining.	Rack after 4 days one month prior to bottling.	

Most wine will clarify during aging, with periodic rackings to remove sediments. To remove oxidation or reduce bitterness, fine with **Polyclar** or **Whole Milk**. To soften tannins, use either **Egg Whites** or **Gelatin**, followed by **Sparkolloid**.

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

Two of the most commonly used fining, or clarifying, agents are used as follows.

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

Simmer gently for 15-20 minutes. Add the hot mixture into the wine. Stir gently, but thoroughly. Let stand three to four weeks and carefully rack away from the sediments of the Sparkolloid and the lees. It's a very fluffy sediment, so be prepared to lose an inch of wine.

Bentonite requires that a slurry be made up a day in advance. Measure out a 750 ml. bottle of water, and heat it to boiling. Slowly stir in 1 oz. of Bentonite. Mix it thoroughly for about one minute in a blender and funnel back into the 750 ml. wine bottle. Close with a silicone or latex stopper and let it stand for a day. Shake up the slurry to thoroughly mix it back into solution and then thoroughly stir 1/4 cup into each five gallons of wine. Rack as usual after 1 to 2 weeks.

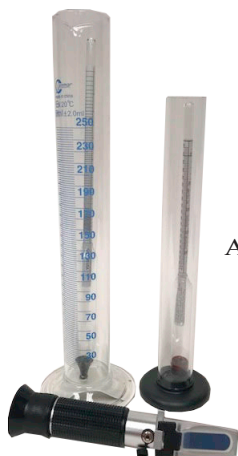
WINE LABORATORY

Sugar & Alcohol Testing

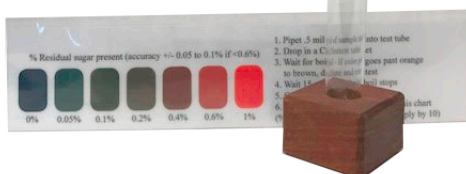
Hydrometers and Refractometer

Economy and Precision
Hydrometers and Test Jars

Refractometer 0-32 Brix,
Automatic Temperature Compensating



Residual Sugar



TE65 Residual Sugar Test kit

comes with 36 AIM residual sugar tablets. This kit accurately measures residual sugar in wine or beer of up to 1%. Dilution of your beverage can allow you to measure higher levels of residual sugar. Comes with instructions.

pH Meters

TE203 Milwaukee pH Meter

Manual, portable pH Meter, Milwaukee model MW102, 0-14pH, ATC. Comes with 9V battery, pH and temperature probes, and 4 & 7 sachet buffer solutions. Resolution 0.01 pH and 0.1 degree C. Accuracy (25C) .02 pH.



TE73 Oakton Waterproof pH Testr20

Digital, battery operated, accuracy to 0.01 pH. Automatic temperature compensated, double junction electrode can be replaced.



Malolactic Testing

TE20 Malolactic Chromatography Kit

6 papers
4 oz Solvent
100 pipets
3 Acid Standards
Funnel
and Instructions.



Labware

Flasks, Cylinders
Beakers, Buret Stands
Pipettes and Bulbs



Vinmetrica Wine Analysis Test Equipment

TE162 VINMETRICA SC-100A - Sulfite Tester

The Vinmetrica SC-100A analyzer accurately tests SO₂. Kit includes everything to perform ~50 sulfite tests. SC-100A meter, SO₂ electrode, all reagents, sampling and transfer pipettes, syringe and titration beaker.

TE163 VINMETRICA SC-200 - pH and Titratable Acidity

The Vinmetrica SC-200 analyzer uses the pH meter in the device to perform accurate total acidity tests. Kit includes everything to perform ~30 pH & TA tests: SC-200 meter, electrode, reagents, pipettes, syringe and beaker.

TE164 VINMETRICA SC-300 - Combination TA Titration, Free and Total SO₂, and pH Tester. The Vinmetrica SC-300 analyzer gives accurate SO₂, pH and TA values. Kit includes everything to perform ~50 sulfite tests & 30 TA tests: SC-300 meter, SO₂ and pH electrodes, all reagents, transfer and sampling pipettes, syringes and two titration beakers.

VINMETRICA SC-300



VINMETRICA SC-100A



WINEMAKING EQUIPMENT

Basket Presses

Wooden or stainless cage with steel base on legs, the traditional and reliable way to press fermented red grapes or crushed white grapes.



Model	Basket Number	Basket Diameter	Height	Capacity in Gal.
WE37	#20	8"	12"	2.5
WE02	#25	10"	14"	5
WE02-Tilt	#25	10"	14"	5
WE03	#30	12"	17"	7
WE04	#35	14"	19"	12
WE05	#40	16"	21"	18
WE06	#45	18"	24"	25
WE07	#50	20"	26"	34
WE49	#30 stainless cage/base	12"	17"	7
WE27	#40 stainless cage/base	16"	21"	18

Water bladder presses are top of the line, with quality manufacturing and attractive features. Water bladder presses are easy to use, they get better juice extraction than ratchet style presses, and are gentle on the fruit.

Model	Capacity in Liters	Basket Diameter	Height	Capacity in Gal.
WE59-M	40 Liter	18.5"	20"	10.5
WE55-M	80 Liter	17"	23"	21
WE46-M	160 Liter w/ wheels	20"	28"	42

Crushers

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

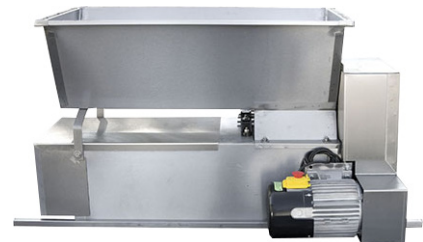
- WE12 Double roller grape crusher with paint finish
- WE13 Double roller grape crusher, stainless
- WE30 Apple cutter/crusher, stainless knives
- WE33 Apple breaker, electric, stainless



Crusher/Destemmers

Crusher/Destemmers: Manual and electric models are available, both will process around one ton per hour. Imported from Northern Italy from Marchesio and feature rubber rollers.

- WE14 Manual, paint grade crusher/destemmer
- WE15 Manual, stainless crusher/destemmer
- WE18 Electric 110V, stainless crusher/destemmer screw-feed & extended hopper with auger
- WE25RR Electric 110V, ALL stainless crusher/destemmer screw-feed & extended hopper with auger
- WE20 Stainless Steel Support Stand, fits all models
- WE20-M Enameled Support Stand, fits all models except WE18



Variable Capacity Tanks

Marchesio tanks include: Floating lid with Elastollan inflatable tube, 1/2" port and ball valve, air pump with gauge, and Tank Topper TM airlock riser. Marchesio stands available for 100-300L tanks, sold separately. Spiedel tanks include: Floating lid with inflatable rubber tube, two 1/2" ports and one ball valve, and air pump with gauge.

- WE43-M 100 Liter Stainless tank (26 g.)
- WE43 110 Liter Stainless tank (29 g.) (Spiedel)
- WE39 150 Liter Stainless tank (40 g.)
- WE40 220 Liter Stainless tank (58 g.) (Spiedel)
- WE54-M 250 Liter Stainless tank (66 g.)
- WE42 290 Liter Stainless tank (77 g.) (Spiedel)
- WE44 400 Liter Stainless tank (106 g.)
- WE45 500 Liter Stainless tank (132 g.)
- WE53-M 300 Liter Stainless tank, cone bottom, legs, 2 ports (79 g.)
- WE47 500 Liter Stainless tank, cone bottom, legs, 2 ports (132 g.)

(Stand sold separately)



Wine Bottle Fillers

- WE19 Plastic basin 3 Spout Bottle Filler.
- WE28 All Stainless 3 Spout Filler
Drip tray included
- WE29 All Stainless 5 Spout Filler
Drip tray included



Pricing and Flat Rate Freight Quotes available at: www.thebeveragepeople.com

KITS AND JUICE

“Harvest Essentials” Wine Equipment Kit

BNW02

All the essential equipment and durable goods you need to start your first six gallon batch of grape or fruit wine! This complete Wine Making Equipment Kit comes with a ten gallon primary fermentor and lid, a six-gallon PET secondary, an air lock and stopper, 25 Campden tablets, a siphon assembly, Country Wine Acid Testing Kit, Hydrometer, Test Jar, TDC Cleaner, BTF Sanitizer and the book *Home Winemaking Step-by-Step* by Iverson.



“Premium” Wine Equipment Kit

BNW01

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

Note: For White or Blush Wine, kits includes 5 gallon PET Plastic Bottle in place of the bucket and lid.

Canned Grape Concentrates

Choose your Varietal, 46 oz 68° Brix: Burgundy, Cabernet Sauvignon, Chardonnay, Sauvignon Blanc, Muscat, Zinfandel, Petite Sirah.

Temperature Control

Uni-Stat IIA and III (pictured) controls both heating and cooling. Fermwrap and Brew Belt heaters wraps keep it warm in a cold snap.



Harvest and Fermentation Tools

Grape Shears, Grape Knives, China Cap and Mesh Strainers, Mesh Bags.

Grape tote bins are available during harvest.



YEAST & BACTERIA

Dry Wine Yeasts

Choose your yeast strain from the information chart provided on page 11. Use one to two grams per gallon.

Malolactic Bacteria Cultures

WY32 ML Culture, Wyeast #4007

125 ml. inoculates 6 gallons directly.

WY51 ML Culture, Enoferm Alpha Strain

2.5 g. pack inoculates 66 gallons directly, with rehydration.

WY66 ML Culture, Enoferm Beta Strain

2.5 g. pack inoculates 66 gallons directly, with rehydration.

WY52 ML Culture, Viniflora™ (Chris. Hansen CH16)

2.5 g. pack, inoculates 66 gallons. No rehydration.

Optimized Malolactic Nutrients

QR38 Acti-ML Nutrient for MLF for 66 gal. 50g.

QR35 Opti ML Blanc

Nutrient for White or Rosé MLF for up to 66 gallons. 50g.

Malolactic Best Practices

- Keep the total of all pre-ML sulfite additions below 50 ppm.
- Add a lab produced culture after pressing and/or when the brix have dropped to around 0. Cell counts can be important as these bacteria will not begin to ferment unless they are at or above a population of 1 million cells/ml. So don't cut corners on cell counts!
- Ensure your ML bacteria have enough nutrition by rehydrating them with a nutrient such as Acti-ML or Opti ML Blanc.
- Maintain temperatures that are warm but not hot. These bacteria ferment best above 70 degrees F, but can be killed above 80.
- If you want a buttery character, keep the wine in a barrel or other vessel which allows micro-oxygenation during fermentation. Do not stir during fermentation. If you want to avoid a buttery character, keep the wine in a stainless, glass or plastic vessel and stir the lees on a regular basis during fermentation.
- Ideally, fermentation should be complete in about 3 weeks. Test for completion with a Chromatography Kit, submit a sample for lab testing, or run a test yourself on our Reflectoquant meter. If your malic levels are below 30 ppm, you are done. Sulfite as soon as possible!

Malolactic Prevention

WY60 Lysozyme liquid “Lyso-easy” 250 ml.

SUPPLIES

Enzymes

- QR04 Pectic Enzyme**, 1 oz. For up to 200 lbs. of fruit.
QR61 Lallzyme ® EX Red Wine Enzyme 10 g. for 1000 lbs. of grapes.
QR63 Lallzyme ® Cuvee Blanc White Wine Enzyme 10 g. for 1000 lbs. of grapes.



Yeast Nutrients and Optimized Yeast Nutrients

- QR06 Fermaid K™** Yeast Nutrient. Complete nutrient mix with trace minerals, use 1 gram/gallon during fermentation 3 oz.
QR11 Yeast Nutrient, Diammonium Phosphate, 2 oz.
QR42 Go-Ferm ®, for preparing yeast starters.
QR33 Autolyzed Yeast, 2 oz.
QR16 Yeast Hulls, 2 oz
QR72 Opti-Red ® Yeast Derivative Nutrient, 50 g
QR74 OptiMUM-White ® Yeast Derivative Nutrient, 50 g



Sulfites

- CS24 Potassium Metabisulfite**, 4 oz.
CS20 Potassium Metabisulfite, 1 lb.
CS17 Campden Tablets, Pack of 25.
CS16 Campden Tablets, Pack of 100.
CS33 2 g and 5 g IO Inodose Effervescent SO₂ Tablets
3 pack or box of 48 packs. One 2 g tablet delivers 9ppm SO₂ in 60 gallons of must or wine. One 5 g tablet is 22 ppm in 60 gallons.

Fermentors

Note: All Plastic Carboys take a #10 Stopper. All current Glass Carboys take a #6.5 Stopper. Also see Silicone Breather Bungs which fit all of the Carboys without the use of an Airlock.

- GL58 5 Gallon PET Plastic Bottle**
GL59 6 Gallon PET Plastic Bottle
GL02 3 Gallon Glass Carboy
GL01 5 Gallon Glass Carboy
GL40 6 Gallon Glass Carboy
GL04 6.5 Gallon Glass Carboy
P01 6.5 Gallon Plastic Bucket with Wire Handle
P02 Lid for 6.5 Gallon Bucket
P04 10 Gallon Heavy-Duty Plastic Bucket
with molded handles
P05 10 Gallon Lid

Note: 20, 32 and 44 Gallon Buckets and Lids are available for pickup at the retail store.

TE81 Fermometer Strip, Monitors temperature from 36 to 78°F, stick to tanks or carboys to read surface temperature.

Air Locks, Stoppers and Breather Bungs

Fermentation Locks: Three Piece or S-Shape One Piece.



Silicone Breathers:

Carboy Breather Bungs in sizes to fit all carboys.
Breather #11 for Barrels.

Solid stoppers:

Latex in all sizes.
Silicone Bungs in Solid #8 fits 1L Flask.
Joined Size to Fit a Barrel.

Cleaning and Sanitizing

Sodium Percarbonate (Proxycarb)

is an alkaline cleaner and is a great all-purpose cleaner. It contains an oxygen based, non-chlorine bleaching agent.

TDC™

is an acid cleaner with the ability to dissolve mineral deposits making it great for glass. It is an unscented liquid.

BTF™

is an iodine based, no rinse, sanitizer. Once the solution is made, you can use it for a few days.

STARSAN™

is a phosphoric acid based, no rinse, sanitizer. The dilute solution is more stable than iodine based sanitizers and can be used for a longer period of time.

Oak Barrels

All year we stock small capacity oak barrels made of American Oak and coopered in Arkansas.

	Toasted	Charred	Paraffin Lined (for Vinegar)
1 gallon	B01	B43	
2 gallon	B02		B10
3 gallon	B03	B49	B11
4 gallon		B45	
5 gallon	B04	B08	B12

Barrel Spigots and Stands

Wooden Spigots, made in Italy, are available in a wide assortment of sizes. Stands are made here in Sonoma County.



Oak Alternatives

Liquid Oak Extract - B42

From pure Dark French Oak allows for easy oak addition to wines, ports, and some traditional meads before bottling. Use 2-3 oz. per 5 gallons, or to personal taste preference. Available in a 4 oz. bottle.

Oak Chips

Single use oak chips are the most cost effective way to add oak character to your wine or augment oak barrels that have seen several seasons. Use up to 3 oz in 5 gallons of wine. B46 American Medium, B24 French Medium, B25 French Dark.

Oak Cubes

Convenient for their small size while providing tannin extraction and flavor similar to a barrel. Use 2-3 oz. per 5 gallon carboy or 8 oz. for 60 gallon barrel or tank for extraction equivalent to 1/3 new oak treatment. B32 French Medium, B44 French Medium Plus.

WINESTIX™

These sticks are milled using a process to achieve a balance of short grain and long grain in the same piece of wood. A hole in one end of each stick allows for stringing them together and easy removal. Two per bag. Use 1 per carboy. B91 American Light, B92 American Medium, B93 American Medium Plus, B94 American Dark, B95 French Light, B96 French Medium, B97 French Medium Plus, B98 French Dark.

Chain-O-Oak™ Staves

This choice is popular for barrel and tank aging programs. Each set of

staves is linked together with the provided ties and an eyelet screw connects them to the bottom of the bung. After aging to full extraction, the chain imparts about 1/3 the oak flavor of a new barrel. **B78 American Medium, B79 American Dark, B74 French Medium, B75 French Dark.**

Cellaring Tannins

Choose from an assortment of commercial options to improve mouthfeel, color, flavor and aroma. Some of these tannins are sacrificially used in the fermentation, others for tannin additions during aging, while Tannin Riche is a French oak powder used for finishing out the flavor and aroma profile. Details on page 7.

Pumping and Filtering Equipment

For all units below, use F31 Filter/Strainer on the inlet hose to avoid clogging the diaphragm with solids.

SHURFLO Self-Priming Diaphragm Pump

(PS09, shown right) is the ultimate transfer pump for the home winemaker. It is affordable and effective. 110V motor provides for rate up to 3 gallons per minute 1/2" MPT ports and head is made of food-grade, NSF approved, polypropylene and santoprene. For a complete setup, you will need to add two 1/2" FPT Hose Barb fittings (PS49) to connect to 1/2" thick wall hose.



PROCON Pumps can handle the bigger jobs. We have used these pumps as our rental units for many years with success. 110V, 1/4 HP motor provides for rate up to 4 gallons per minute. Brass head pump (PS36) as well as Stainless Steel Head Pump (PS35) are available. Both units are otherwise identical and have two 1/2" MPT ports.



BUON VINO Super Jet Filter (F05, shown

left) is a user-friendly plate & frame filter combined with electric diaphragm pump. Use Filter/Strainer (F31) on the inlet hose to avoid clogging the diaphragm with solids. Pads available for Super Jet Buon Vino, set of 3: F09 8 micron coarse, F22 2 micron medium, F21 0.5 micron "Sterile". Micron sizes are nominal, not absolute.

ROVER POMPE COLOMBO® filters from Italy are comprised of an electric pump and a filtering system called the pressed layer liquid system. This special filtration method purifies beverages to a very high standard without affecting the fundamental characteristics of the processed liquid.

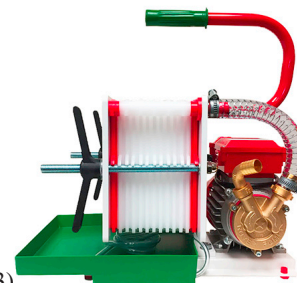
Available in:

WE107 Filter Mini12 with 12 Plates

(shown right), 20X20cm, 110 VOLT

WE100 Filter Mini6 with 6 Plates

20X20cm, 110 VOLT



10" Cartridge Filter Housing, Clear (F03)

This housing unit makes it easy to convert a pump into a filter. Use with a pump such as Shurflo or Procon and 10" filter cartridges: F10 3-Micron Coarse, F11 1-Micron Fine, F12 0.5 Micron "Sterile". Micron sizes are nominal, not absolute.

BARREL CARE

Care of a New Barrel

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

Swelling up a Barrel

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

Acidifying a New Barrel

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

Cleaning at each Wine Racking

Once a barrel has been used for wine storage, additional cleaning and sanitation measures are required. At each racking, rinse the barrel thoroughly with water to remove debris. Follow

by rinsing the barrel with an acid wash. Dissolve 2 Tablespoons of Citric Acid in five gallons of water, sloshing this mixture around the interior surfaces of the barrel for 5 to 10 minutes. Drain, and refill the barrel with wine.

Preparing for Storage

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

Use 4 oz., or 8 Tablespoons, of

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

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

Cleaning Step by Step

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

Short Term Storage

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

Long Term Storage

If it will be more than two months before

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

Repeat every two weeks as needed until a flashlight reveals no shiny dampness in the bottom of the barrel. Bung up the barrel and store it in a dry place until needed,

allowing enough time to soak up and acidify the barrel before the next use.

COPPER TREATMENT

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

The simplest, and generally first, VRS to appear is Hydrogen Sulfide, H₂S. It is commonly described as smelling like rotten eggs. Since humans can detect the smell when the concentration in wine is only one or two parts per billion, it doesn't take much to make the wine very unpleasant. While "over sulfuring" in the vineyard (by the vineyard manager) is the most frequently cited cause (by the winemaker), those of you who grow your own grapes and then make the wine have no one else to blame! Try to go at least 35 days between the last sulfur application and harvest. But let's face it: a much more frequent cause is lack of nutrients—primary amino nitrogen or certain vitamins—during primary fermentation. You can address prevention of that problem by analyzing your juice nutrient level as described on pg 10.

But let's suppose the odor shows up anyway. The most conservative treatment is to aerate the wine during racking—splash it into the receiving vessel. Be sure your free SO₂ level is up where it should be prior to the splash racking—otherwise you may oxidize your wine, turning it brown and Madeira-like. A more effective solution is to treat

with copper. When exposed to copper, the sulfide combines with the copper to make copper sulfide, which is not soluble in wine. While some books will tell you to just run the wine over a sheet of copper, our experience has not found this technique highly effective. Instead, the direct addition of a small amount of 1% copper sulfate solution is usually quite effective. Add it at a rate of 3/4 of a ml for every gallon of wine. This will give you a maximum level of 0.5 ppm (mg/L), which is the level allowed in commercial wine. If you must treat the wine again to completely clear the sulfide aroma, you may want to remove residual copper by adding yeast hulls at a rate of 5 grams per gallon, stirring frequently, and racking again in a few weeks. For the copper treatment alone, rack after a couple of days to leave the black copper sulfide behind. At part-per-million levels you may never see it, but it's there!

If you have not promptly removed H₂S, your wine may go on to develop more complex VRS compounds. Next in line are the mercaptans: methyl mercaptan smells like burnt rubber or rotten cabbage and ethyl mercaptan smells like burnt matches or dirty ashtrays. These are not volatile enough to remove by aeration, but copper (just as for H₂S) still works. To check for possible effectiveness, clean a copper penny in a mild acid solution (a little citric or tartaric in some water). Place your now-bright penny in a wine glass, add wine, and swirl. Let it stand for a minute or two, and the bad smell should go away if you have a copper-treatable problem. Follow the instructions in this article and your wine should clean up.

Wine Thieves

From Economical to Impressive

Plastic, Assembled of 3 pieces

Straight Glass 12" and 18"

Glass Angled D- Ring 18"



Barrel Stirring

By Hand or With A Drill

The Whip, Nylon, De-gasser, 15"

Stainless Steel Lees Stirrers, 22" and 41"



(Drill not included)

Barrel Maintenance



Sulfur Disks (5 g and 10 g disks)

Sulfur Disk Holder, Stainless Steel

Sulfur Strips (Pack of 2 or Bundle of 70 strips)

Mildewcide, Barrel Coating (16 oz, 32 oz, 1 gal)

Hoop Nails (20 pack), Spiles for Barrels (Fills holes, 10 pack)

Corkers and Cappers



Hand held and
bench top cappers.

Italian Corkers,
Mini and Heavy Duty.

WINE BOTTLES



750 ml Wine Bottles, 1.5 Liter Magnums, Champagne Pressure Bottles. We offer competitive pricing and a wide selection year round. Bottling equipment is available for rent. See back cover.



Small format bottles offer options for dessert wines, olive oils, vinegars, liqueurs, and other special bottlings. We carry an assortment of 250 ml, 375 ml, and 500 ml bottles in cork finish and screw cap.

Screw Cap Sample Bottles 750 ml and 375 ml.

While these bottles are not appropriate for long term storage, they are very convenient for lab testing and sharing for immediate consumption.



Pressure bottles come in many sizes and colors. Crown cap and flip-top in 12 oz, 16 oz, 750 ml, and 1liter. Amber, clear and blue.



Wine Corks and Bottle Closures

Bottle Design

Our best **All-Natural Wine Cork** from M.A. Silva carries the manufacturer's highest strength rating, UF25. Being made from a single piece of cork means you're getting superior durability and longevity, which translates to more confidence in the shelf life of your wine.

Available in packs of 100 (WC07) and 1000 (WC02B)

Xiberta's Twin Disk Wine Cork is a more economical choice. It is a hybrid cork for bottles destined for short to medium term aging. Constructed of an agglomerated cork core sandwiched between two solid cork pieces.

Available in packs of 100 (WC14) and 1000 (WC13B)

Our Chamfered All-Natural Wine Cork from M.A. Silva has rounded edges making it ideal for use with the Double Lever Corker we carry.

Available in packs of 25 (WC11) and 100 (WC06)

Other Closures Available:

Plastic Champagne Stoppers and Wires, Bar Top Corks, 28 & 38 mm Metal Screw Caps, 28 & 38 mm Plastic Polyseal Caps, Crown Caps for Beer Bottles.



Bottle Sealing Wax Available in 7 colors

SL26 Black, SL27 Burgundy, SL28 Gold, SL29 Silver, SL31 Blue, SL30 Red, or SL32 Green.



Heat Shrink Plastic Sleeves, Apply to bottle neck with boiling water (212°F.) or heat gun. SL18 Silver, SL33 Green, SL20 Gold, SL19 Burgundy, or SL49 Black.

We can also help you make professional labels! Come visit.

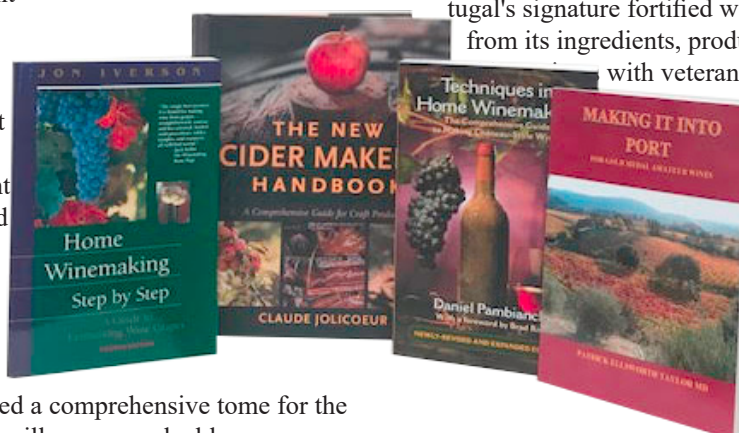
POPULAR WINEMAKING AND CIDER BOOKS

Home Winemaking Step by Step, Iverson, BK140

Jon Iverson's book, *Home Winemaking Step by Step*, is one of our most popular books among beginning and intermediate wine makers. This book excels at building confidence in new winemakers while proving an excellent resource for those seeking to expand their skills. Iverson presents the chemistry of winemaking in a manner that is accessible and encourages the reader, rather than presenting overwhelming jargon and spreadsheets.

Techniques in Home Winemaking, Pambianchi, BK12

Daniel Pambianchi has created a comprehensive tome for the home winemaker. This book will prove a valuable resource as you move from a beginner to advanced vintner. The topics covered in this book range from the fundamentals of the wine making process to making icewine and building your own wine cellar. Pambianchi has a chemistry background and is the owner and winemaker at Maleta Winery in Niagara-on-the-Lake, Ontario. He is also a Technical Editor and columnist for *WineMaker* magazine.



Making It Into Port, Taylor, BK31

Local Sonoma County author and award winning winemaker, Patrick E. Taylor's outstanding *Making it Into Port* is a must read for those winemakers looking to make their own version of Portugal's signature fortified wine. Taylor covers every aspect of Port from its ingredients, production, and aging to the history of Port with veteran professional winemakers. Home wine makers will enjoy Taylor's conversational tone and easy to follow step-by-step instructions.

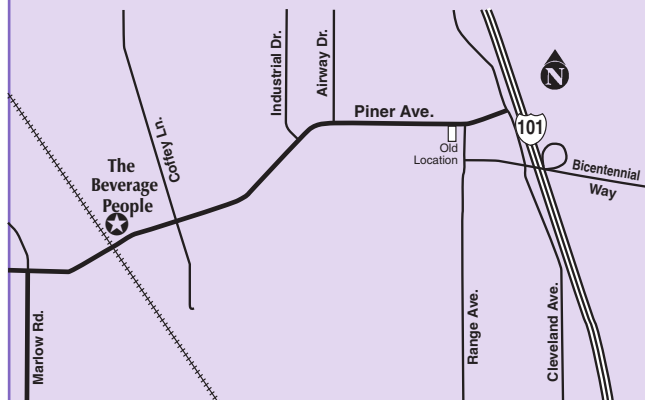
Whether you're merely curious about Port or wish to win gold medals with your own fortified wines, *Making it Into Port* is worth a read.

The New Cider Handbook, Jolicoeur, BK165

This book will appeal to both serious amateurs and professional cider makers who want to increase their knowledge, as well as to orchardists who want to grow cider apples for local or regional producers. Novices will appreciate the overview of the cider-making process, and as they develop skills and confidence, the more in-depth technical information will serve as an invaluable reference that will be consulted again and again.

The Beverage People
1845 Piner Rd. Suite D
Santa Rosa, CA 95403
(707) 544-2520

Our Hours:
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Saturday 10 AM - 5 PM



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Got Grapes or Apples?



Our grape and apple listing books are a resource for both the wine and cider maker as well as the grower. Local growers can list their fruit for sale. Wine and cider makers can source their fruit by coming in to the shop and taking a look at the listings. If you would like to place a listing, please send us a list of fruit available, pricing, and any other information about your fruit you would like to include. Don't forget to provide your name, address and phone.

Our Classes

Many Saturdays, and some weekdays, throughout the year you will find us teaching in The Beverage People classroom. We host regularly recurring, as well as one-off, classes with on-staff and outside instructors. Let us guide you on your fermentation journey.

Classes Include:

- Beginning Winemaking - Harvest Course
- Wine Cellaring and Sensory Evaluation
- Cider Making Workshop
- Make It Into Port
- Beginning and Advanced Cheesemaking
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