SOME COMMON WINE FAULTS

by

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Protein Hazes Protein molecules can grow in size (polymerize) and become large enough to precipitate and form hazes in white or blush wines. The particles are light, fluffy and easily disturbed.

These hazes are called hot instability because the protein precipitation is accelerated by warm storage conditions. Avoid excess protein in white and blush wines by fining with bentonite before the wine is bottled. Bentonite dose levels range from 1/4 to 4 grams per gallon.

Pectin Hazes Pectin and gums are large molecules formed from many smaller sugar molecules bound together. Excessive amounts of pectin can cause an ugly haze in both white and blush wines.

Pectin and gums plug filter pads quickly, so filtration may not be a practical solution. However, these hazes can be removed by adding pectic enzymes either before or after fermentation. The enzymes break up the large pectin molecules into smaller sugar molecules that are too small to cause haze problems.

Metal Hazes Fifty years ago, much of the winemaking equipment was made of iron and brass, and hazes caused by excessive amounts of iron and copper was very common. Metal hazes are light gray in color. They are very cloudy looking so they are very unsightly in white or blush wines.

Today, most winemaking equipment is made of stainless steel or plastic, and metal haze problems have been almost eliminated. Several proprietary fining materials can remove metals from wine, but these products are based on poisonous cyanide compounds. Minor metal hazes can be removed by fining with ordinary, dry yeast. The metal adheres to the yeast cell membranes and is removed when the wine is racked off the yeast lees.

Phenolic Deposits Phenolic molecules can polymerize and precipitate much like protein molecules. So, phenolic materials can produce hazes and unsightly bottle deposits in red wines.

Excess phenolic material can be removed from wine by fining with protein materials such as egg whites, gelatins, casein, Isinglass, etc. Gelatin dose rates range from 1/8 to 1 gram per gallon. Casein dose rates range from 1/8 to 1/2 grams per gallon.

Tartrate Deposits New wines are saturated with potassium bitartrate (cream of tartar). At cool temperatures, the tartrate precipitates out of the wine. Hazes can develop, or grayish crystals may form in bottled wine. Tartrate crystals have little taste, but they are often mistake for broken glass particles.

Large wineries remove tartrate from wine using an ion exchange process. Small wineries remove tartrate simply by cooling their wines to about 27 degrees. The wine is kept cold for several days, and then the wine is racked off the tartrate deposit. This cold stabilization process does not harm the wine in any way. In fact, the cold temperature helps precipitate other undesirable materials, and it often improves the clarity of young wines. All commercial white and blush wines are cold stabilized before they are bottled.

Sherry Smell When wines are exposed to the air, alcohol oxidizes into acetaldehyde and wines develop a nutty, sherry-like odor. Color is also affected. White wines become a darker color and red wines develop a brown edge.

In mild cases, small additions of sulfur dioxide can react chemically with acetaldehyde and remove the sherry-like odor. Sometimes, badly oxidized wines are added to active fermentations and the yeast will convert the acetaldehyde back into alcohol. But this can be risky business because if this treatment is not successful, the winemaker has even more oxidized wine.

Hydrogen Sulfide Hydrogen sulfide (H_2S) is a gas, and it produces the distinctive smell of rotten eggs. The human nose is very sensitive to hydrogen sulfide and tiny amounts of this nauseous gas can completely spoil a fine wine. Home winemakers often attempt to remove H_2S by racking and splashing wine, but this method is not dependable. Sometimes aerating the wine oxidizes the hydrogen sulfide gas into a disulfide, and results in a catastrophic lose of the wine. Disulfide smells as bad as H_2S and is very difficult to remove from wine.

Wine Gallons	Milliliters of 1 % Solution
5	1
10	2
20	4
30	6
40	8
50	10
100	20

Hydrogen sulfide can often be successfully removed from wine by adding 0.1 mg/l of copper. A few milliliters of **1% copper sulfate solution** is the standard remedy. The correct amount is shown in the Table. Copper combines with the H_2S gas and produces copper sulfide. Copper sulfide is a solid and it has no odor. It precipitates out of the wine and the wine can be racked or filtered off the copper sulfide lees. This treatment can be repeated two or three times if necessary.

Too Little Acid Grapes grown in warm climates often do not contain enough acid to produce a balanced wine, and these wines may taste flat, bland and insipid.

Warm climate winemakers solve this problem by adjusting the titratable acid (TA) to the proper level with tartaric acid additions. Any significant acid adjustments should always be made prior to fermentation so the change in acidity is better integrated with the wine.

Too Much Acid Grapes grown in cold climates often contain too much acid. These wines may be out of balance and taste overly sharp and too tart.

Cold stabilization and malolactic fermentation will remove small quantities of acid from wine. Potassium carbonate to reduce the acidity of crushed grapes or juice **prior** to fermentation when larger corrections are needed.

Burnt Match Winemakers use sulfur dioxide (SO_2) to deactivate browning enzymes, to control microbes and to reduce wine oxidation. Sometimes winemakers add too much sulfur dioxide, and then the wine has a pungent, burnt-match smell.

The amount of sulfur dioxide in wine slowly diminishes with time, so by just waiting a few months, the SO_2 content may drop to acceptable levels. Sulfur dioxide can be chemically removed from wine using hydrogen peroxide. **But, careful testing and accurate measurements are required**.

Volatile Acidity Wine is turning into vinegar when microbes produce acetic acid, and acetic acid gives wine a distinctive hot, burning aftertaste. A vinegar odor and sometimes a nail polish smell develop in the wine.

Acetic acid can be removed from wine. But treatment is expensive, so small producers rely on prevention. Lactic bacteria can be controlled easily with SO_2 and both film yeast and vinegar bacteria require oxygen. So, just keeping storage containers full and tightly sealed can protect wine from excessive amounts of acetic acid.