

HAZES IN YOUR WINE? HERE'S WHAT TO DO!

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So your finished product tastes OK but dosen't look as good as it should. Don't worry, even the best winemakers have these hic-cups occasionally. Let us first have a look at what could have gone wrong.

We assume you have a good sound wine of correct acidity and that the cloudiness is caused by foreign bodies. These foreign bodies can be any one or a combination of the following:-

- 1. Starch
- 2. Pectin
- 3. Protein
- 4. Colouring matter
- 5. Metal contamination
- 6. Micro organisms
- 7. Hydro colloids
- 8. Over fining

We need to know what is causing the haze to give the correct treatment, so here are some tests we could try.

Starch In wines prepared from grains and vegetables a possible haze cause is starch. Starch is a poly-saccharide that is non-fermentable until it has been reduced by enzyme action to the mono-saccharides (dextrin & glucose). Starch in a wine may be in the form of a protective colloid like pectin or simply in micro particles. Ordinary iodine makes a fine testing agent for starch. Place a small quantity of wine in a test tube and add 5 drops of iodine. If starch is present, the wine will turn dark blue. The remedy is to use the enzyme known to us as Starchase in the reccomended quantities. This is better used before the event, but is still effective afterwards.

Pectin A very common cause of hazes, pectin can be detected very easily by the common methylated spirits. Simply pour some metho into a test tube and add 5ml (1 teaspoon) of the wine to be tested. Shake vigorously and leave to settle. If the haze is caused by pectin, jelly-like clots or strings will appear, although this may take up to an hour.

The treatment is to mix the specified amount of pectin-destroying enzyme (pectinase) with a little of the wine (about 1/2 litre). Leave to stand in a warm place for an hour, shaking the bottle gently from time to time, and then stir into the hazy wine until well mixed. Replace the cork or airlock, and stand the jar in a warm place for 3-4 days. When the wine begins to clear, move it to a cool place to encourage precipitation. When the wine is quite clear, rack & bottle.

### Protein and Coloring Matter

Cellulose tissue and protein which for one reason or another remain in suspension can be cleared both by filtration or fining - for details see below:-

**Metal Contamination** Hazes caused by metal contamination can usually be detected by a metallic taste and a brownish color to the wine. Such wines should be disposed of.

**Micro Organisms** If a wine was clear and bright and then went hazy the cause is invariably bacterial. The answer to this is not filtering or fining. But the immediate use of sulphite. If the wine remains hazy after sulphiting, then filtering or fining can be considered.

**Colloids** The sub-microscopic particles that make up colloidal hazes have a minute electrical charge which is either negative or positive depending on the particular colloid. All the particles causing a haze have the same charge and repel each other in the same way as poles of a magnet repel each other. By this action they remain in suspension. When a fining agent with an opposite charge is added, there is a mutual attraction, the particles agglomerate and their combined weight is sufficient for them to fall by gravity to the bottom, so the wine is cleared.

**Finings** Only the most commonly used finings will be discussed here, as they are readily available and most efficient. But a word of warning:- If an excess of a fining agent is added, the colloidal particles will be neutralized, but the the electrical charge of the fining agent in excess will increase the haze instead of removing it. Therefore a trial fining should be tried to ascertain the best fining and the least amount that will clear the wine without over-fining.

**Bentonite** Negative charged and most suitable for fining wine with hazes due to protein and coloring matter.

Dry bentonite should not be added direct to your wine as lumping will occur. Proceed as follows for a 5% stock solution:-

To each 100ml of water, add 5gr of bentonite slowly as you vigorously stir or whisk to ensure a smooth mixture. Leave this mixture for 24hrs and then mix/whisk again vigorously. The required amount of this 5% solution to clear 5 litres of wine is generally between 20ml and 100ml.

**Sulphite** Commonly regarded as an inhibitor, it is also a purifier and minor fining agent. When used in the normal manner of 50 to 150ppm, it inhibits micro organisms and removes bacterial hazes, reduces or helps to prevent oxidation and assists clearing by neutralizing some of the electrical charges of colloids.

**Refrigeration** Proteins and other compounds can be precipitated by chilling wines to near freezing, because they become insoluble at the lower temperature. Chilling and racking will therefore remove protein and some other hazes from wine.

**Egg White** Positive charged. Reacts with tannin and can therefore be used in high tannin wines or ones to which tannin has been added for fining. Use great care not to over fine as only small quantities are required (1 egg white is enough to fine 50 litres of wine). Tannin is required when using albuminous substances as they establish hydrogen bonds together. A protein - tannin complex is formed which coagulates and precipitates taking with it the suspended particles. This is also a sneaky way of reducing a high tannin content.

**Milk** A simple source of casein which requires no preparation and has long been used for fining. It is best used for white wines (as it will lighten dark wines) and requires the addition of tannin.

Trial finings are made by adding 0.5ml, 1ml, 1.5ml, and 2ml of milk to each of four 100ml samples of wine. Ten times the quantity of milk giving the best clarification is the amount of milk to be added to each litre of hazy wine.

**Proprietary Finings** There are now a considerable number on the market and are mostly compound preparations. They should be used in accordance with the details supplied by the manufacturers, but trial finings are advisable to ensure that over fining does not occur.

**Trial Finings** Over fining of wines can detract from their quality and cause haze. To prevent this, trial finings are made to ascertain the minimum quantity of fining agent that will clear a wine. For this purpose, percentage solutions/suspensions, as detailed under FINING, are used, so that dosage can be accurately measured. Into each of a number of identical vessels (they can be small bottles) place 100ml of the wine to be fined. Varying volumes of the fining agent are then added, well mixed in and allowed to stand for 24 hours. If four vessels are used, the volumes of the fining agent are added as 1 ml, 2ml, 3ml, and 4ml, but it is preferable to use six vessels adding 0.5ml, 1.5ml, 2.0ml, 2.5ml and 3ml.

After standing 24 hours it should readily be seen which sample has fallen clear with the least quantity of fining agent. Dosage for bulk can then be calculated and the wine treated accordingly.

Should none of the samples clear properly further action is taken depending on the fining agent that has been used:

- (1) If the fining agent is one that does not require tannin for reaction, another fining agent has to be tried.

(2) If the fining agent is one that reacts with tannin, the trial fining is repeated with 2ml of 1% tannin solution also added to each sample. After mixing well the samples are again left for 24 hours. Action for clearing bulk wine is as previously stated with the addition of tannin. If this second trial fining also fails to clear the wine different fining agents should be used for further trial fining.

**Racking** When the wine is bright it should be racked. The suspended solids often include dead yeast cells and fruit or vegetable pulp. If this matter is not removed it will decompose and taint the wine.

**Conclusion** The subject of clarification deserves a four hour lecture not a mini talk. The complex methods have been eliminated, but are never the less very fascinating. I have very much enjoyed researching for you and hope this summary assists you in producing star bright wines.