Enological Products and Their Uses

This article provides information on the basic enology additives: Fermentation Nutrients, Enological Tannins, Polysaccharides or Inactivated Yeasts, and Fining Agents.

Fermentation Nutrients
Yeast nutrients are primarily used to control the nitrogen concentration and its availability to yeast during primary fermentation. A good nitrogen management strategy has been linked to the reduction of hydrogen sulfide production. For practical applications for how to manipulate the available nitrogen during primary fermentation, please refer to the Penn State Extension Wine Made Easy Fact Sheet: Nutrient Management.

The use of nutrients in primary fermentation is common and should be used strategically. Nutrient additions may be added to also support malolactic fermentation.

Nutrient additions during primary fermentation provide the following benefits:

- Provide yeast with inorganic (ammonia) and organic (amino acids) nitrogen during primary fermentation
- Enhances the ease of fermentation
- Minimizes risk of hydrogen sulfide production
- Provide yeast with a range of micro-nutrients
- Are used to enhance difficult, sluggish, or stuck fermentations
- Help keep bacteria in suspension during secondary/malolactic fermentation
- Absorb bacterial inhibitory compounds during secondary/malolactic fermentation

(O)Enological Tannins
In The Oxford Companion to Wine, Jancis Robinson describes (o)enological tannins as "commercial tannins produced by extraction of tannin from oak, chestnut, or birch woods and other suitable plant sources, including grape seeds."

Commercial enological tannins are approved wine additives, which have the generalized potential benefits to wine production:

- Provide protection to oxidation (antioxidant properties)
- Build body or mouthfeel
- Improve wine structure
- Stabilize wine color
- "Freshen" or "clean" wine mouthfeel/taste/aroma
- Develop mid-palate structure
- Improve wine flavor/aroma
- Reduce or mask undesired characteristics (e.g. green, reduced, etc.)
- Add depth to the wine's finish
- Enhance aging characteristics

Polysaccharides or Inactivated Yeasts
Polysaccharides are long-chained sugar-based molecules. They are found in wines as well as many other food products, and commonly used to enhance the taste of wine by contributing "rounder" or "smoother" mouthfeel sensations. Commercial suppliers may also refer to these products as "inactivated yeasts" or "yeast derivatives."

Exploring the use of polysaccharides in wines has become a popular item. There are several uses for polysaccharides in wine before, during, and after fermentation:

- Enhance antioxidant properties
- Improve smoothness in wine mouthfeel
- Soften finish
- Build body or mouthfeel
- Flavor/aroma retention

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• Reduce bitterness and/or astringency
• Contribute wine complexity

**Fining Agents**

Fining agents have been added and used to refine to wines for centuries. Fining agents are generally added to a wine to remove a chemical component that is undesirable in the wine.

Remember to always conduct bench top trials before fining a wine, as their effects on the wine chemistry and sensory perception will vary considerably. Often, suppliers will offer proprietary blends of fining agents, which can also have various effects on the wine.

For a review on how fining agents react with tannins in wine, please see *Wine Tannins Unwrapped Via Clark Smith*.

The following is a list of common fining agents in alphabetical order:

• Albumin and Albumin Alternatives
• Bentonite
• Carbon
• Casein
• Gelatin
• Gum Arabic
• Isinglass
• PVPP
• Silica

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