Protecting from *Botrytis Cinerea*

Botrytis Cinerea

The development of *Botrytis cinerea* on grapes can lead to the presence of organoleptically undesirable metabolites in the must. Of particular importance in winemaking are the enzymes laccase and polyphenol oxidase. These enzymes can result in premature development of oxidized characteristics such as browning in affected wines. The intensity of the oxidative process can be evaluated by leaving a beaker of 500 mL of unsulfured must exposed to air and observing how rapidly the juice becomes brown or develops an orange hue. To limit the negative effects of these enzymes, we recommend the following:

Assess the Damage

Check the infection rate of your fruit and have the laccase levels of your wine tested if you are concerned with residual levels. Dose recommendation ranges given below are for low to moderate rates of infection (5%–10%). Lots with greater than 20% infection may require additional measures. Please contact our technical team with questions on handling these extreme conditions.

Pick it Cold

The lower the temperature of the must, the less *Botrytis*-related enzyme activity there will be.

Up the SO_2

Add 80–120 ppm SO_2 as early as possible, preferably into the picking bins or gondolas when machine picking. This will help minimize oxidative and enzymatic reactions pre-fermentation. An addition of 0.4–0.8 lbs/1000 gallons of **Vin-Chito** will reduce the populations of spoilage microorganisms.

Inhibit the Laccase

Add 1–4 lbs/1000 gallons of **Color-Tan** plus 0.2–0.6 lbs/1000 gallons **Gallic-Tan** to red must or 0.4–1.2 lbs/1000 gallons of **Gallic-Tan** to white juice. Tannins are the most effective tool in reducing the effectiveness of the *Botrytis*-related enzymes laccase and polyphenol oxidase. There are various types of these enzymes, many of which are not affected by bentonite treatment at common wine pH. Tannin addition rates tend to be linearly related to the laccase/PPO inhibition, so the more laccase/PPO activity, the more tannin you need. Care should be exercised as the **Gallic-Tan**, which is the most effective tannin for inhibiting the enzymes, is also quite bitter, so additions are best made to white juice before the pre-fermentation racking.

Consider Flash Détente

Processing reds (and whites) through a a flash détente system such as **TMCI Padovan's Red Hunter*** will completely denature the laccase and polyphenol oxidase enzymes.

Get Aggressive with the Polyphenols

Add 2–6 lbs/1000 gallons **Phenol-Fine Plus NF** to your white juice. This PVPP/casein/bentonite-based blend is particularly effective at removing the oxidized polyphenols (already brown) as well as removing potentially oxidizable polyphenols (before they turn brown). Adding to the juice prior to

Rev. 2.1 Updated 7/7/25

fermentation (after tannin addition) also helps with any residual astringency and minimizes any risk of stripping away aromatics.

Get it Clean

To minimize the time white juice is in contact with infected lees, a rapid and efficient settling is recommended. The bentonite component of the **Phenol-Fine Plus NF** will help improve the efficiency of settling. To maximize the rate of settling, 8–16 mL/ton **Zyme-O-Clear Plus Liquid** or 16–32 mL/ton **Zyme-O-Xtra** enzyme can be added. **Note: enzymes should not be used pre-press on grapes affected by *Botrytis*!** Juices which have been highly clarified may require post-racking addition of clean lees or yeast hulls **(Springcell™)** for a healthy fermentation. Hard-press juice should be kept separate and will likely require additional treatment.

Be Quick

Ferment with 2.5 lbs/1000 gallons of a strong, efficient yeast strain such as **Red Star Premier Cuvée**, **SafŒno™ BC S103**, or **SafŒno™ VR 44**. As rots and molds can result in early scavenging of YAN along with micronutrients, having an aggressive nutrition strategy is important as well. Additions of **DAP** and **SpringFerm™** or **SpringFerm™ Xtrem** should be made at up to 2 lbs/1000 gallons in stages through the early and middle of fermentation. For those wines in which malolactic fermentation is desired, up to 2.5 lbs/1000 gallons of **Malo Detox** to reduce ML-inhibiting toxins and fatty acids along with up to 2 lbs/1000 gallons **Malo Nutribact** ML nutrient will help ensure a quick and successful MLF. Rack off lees as soon as fermentation concludes to further reduce the possibility of residual infection.

Maximize Aromatics

Because pre-press enzymes should not be used, maximize your aromatics with a late-fermentation addition of 24–60 mL/ton **Zyme-O-Aroma Plus** liquid enzyme. Addition late or immediately post-fermentation allows you to bench-trial the enzyme to optimize your dosage and aromatic expression.

Check Filterability

The presence of *Botrytis* and other rots and molds can cause an increased concentration of glucans and pectins post-fermentation, which can significantly impact your filterability. To protect your expensive bottling membrane filters we recommend testing for glucans and pectins. If you see elevated numbers, treat with up to 0.4 lbs/1000 gallons **Zyme-O-Glucanase** enzyme (depending on bench trial results).

ATPGroup's team of experienced enologists and technical specialists is always available to help design a custom program to fit your winemaking style and budget. For more information, please contact your ATPGroup Technical Representative or Enology Products Specialist, or call (707) 836-6840. Information on our products is also available on our website: www.ATPGroup.com.

**Available from our equipment partner Omnia Technologies*

Rev. 2.1 Updated 7/7/25