



## TECHNICAL NEWSLETTER

### MANAGE MICROBES IN WINEMAKING

Ensuring microbial stability is fundamental for quality and economic reasons. Microbial contaminations are the most common cause of wine defects worldwide. Capable of developing at any time during the winemaking process, spoilage microbes are opportunistic organisms and difficult to control and eliminate. The best way to prevent and control the development of spoilage microorganisms is to be proactive with good hygiene, early detection and effective treatment.

#### DETECTION IS PREVENTION

Early detection of microbes in wine through analysis is critical for prevention of spoilage. After all, you can't manage a problem if you don't properly measure it. Viquiry Laboratories by Enartis USA offers the following analysis for detecting microbes:

- **Microscopic Scans** are a fast and easy method to understand the overall microbial load of a wine. Results can be used as a starting point to understand the presence of yeast or bacteria.
- **Culture Plating** is a semi-quantitative method that can be specific for different yeast and bacteria. Culture plating takes up to 7 days to have a reading, which makes this method applicable for monitoring microbes during ageing, or confirm sterility post-filtration, pre and post bottling.
- **PCR** is the most rapid and accurate method for detection of microbes. The PCR Panel includes the most common spoilage wine microbes: acetic acid bacteria, *Brettanomyces*, *Lactobacillus*, *Oenococcus*, *Pediococcus*, *Saccharomyces*, and *Zygosaccharomyces bailii*. It is very useful at all phases of winemaking, especially when rapid and accurate determination of contamination is desired.
- **Brett Assessment Panel** determines the presence, quantity and relative activity of *Brettanomyces* in wine through PCR, culture plating and analysis of their metabolites 4-ethylguaiacol (4-EG) and 4-ethylphenol (4-EP). This analysis can be used routinely throughout maturation to monitor *Brettanomyces* development and activity.
- **Monthly QC Panel** (pH, Free SO<sub>2</sub>, Total SO<sub>2</sub>, Molecular SO<sub>2</sub>, Acetic Acid, Microscopic Scan) is a routine analysis that detects microbial development and activity. Conducted routinely throughout maturation and ageing, this panel is very handy.

#### MANAGEMENT AND ELIMINATION OF WINE MICROBES WITH PRE-ACTIVATED CHITOSAN

Produced from the partial de-acetylation of chitin (produced by *Aspergillus niger*), chitosan is a cationic polysaccharide that interacts with a wide spectrum of microorganisms. Its positive charges (NH<sup>3+</sup> groups) interfere with the negatively charged residue microorganism cell walls, alter their cell wall permeability and inhibit cell growth leading to cell death.

Enartis developed a pre-activation process, which increases the molecular charge, solubility and contact surface of chitosan. Pre-activated chitosan is very effective in eliminating wine spoilage microorganisms such as **acetic acid bacteria**, *Pediococcus*, *Lactobacillus*, *Oenococcus*, *Brettanomyces*, *Zygosaccharomyces*, *Schizosaccharomyces* and **other non-Saccharomyces yeast**. This product is used to control microbes at all phases of winemaking, from harvest and crush to pre-bottling.

#### ENARTIS STAB MICRO AND ENARTIS STAB MICRO M

Pre-activated chitosan-based products, **Enartis Stab Micro M** and **Enartis Stab Micro** are selective fining agents that eliminate populations of a **wide spectrum** of spoilage microorganisms. Both products are vegan and allergen-free alternatives to SO<sub>2</sub> and lysozyme for antimicrobial control.



**Enartis Stab Micro M** (pre-activated chitosan and purified activated yeast hulls) is specifically developed to control spoilage microbe populations in **turbid environment** such as juice, press fractions and/or fermenting must.



**Enartis Stab Micro** (pre-activated chitosan) is highly effective in controlling spoilage microorganism development in wine during **ageing**.



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### APPLICATIONS OF ENARTIS STAB MICRO AND STAB MICRO M

#### WIDE SPECTRUM ANTIMICROBIAL ACTIVITY AT ANY TIME

Eliminate *Acetobacter*, *Lactobacillus*, *Pediococcus*, *Oenococcus*, *Brettanomyces*, *Zygosaccharomyces* and some other non-*Saccharomyces* yeast.

To remove high populations of microbes, **10-20 g/hL** followed by racking. Preventive measure to control populations before wine spoilage, **3-4 g/hL**.

#### MICROBIAL MANAGEMENT FOR HIGH pH WINES.

In high pH wines, SO<sub>2</sub> cannot be used as an antimicrobial. Chitosan is a strong antimicrobial effective against a wide spectrum of microorganisms, even at higher pH.

#### CONTROL MLF/ALLERGEN-FREE ALTERNATIVE TO LYSOZYME

Prevent, delay or stop MLF by eliminating *Oenococcus*. Enartis Stab Micro M is an alternative to lysozyme, with additional advantages: no impact on protein stability, no interferences with protein stability and no significant impact on color. To prevent MLF, **10 g/hL**.

#### PREVENT VA PRODUCTION DURING COLD SOAK AND GRAPE TRANSPORT

Enartis Stab Micro M on grapes at harvest, during crush or in juice reduces "wild" yeast and bacteria populations, thus limiting VA production during the first stages of the winemaking process. **20 g/hL** at harvest.

#### LIMIT STUCK FERMENTATIONS, PROMOTE CLEAN AND COMPLETE FERMENTATIONS, PROMOTE NATIVE FERMENTATION ONSET

By reducing microbial competition and promoting the dominance of *Saccharomyces*, Enartis Stab Micro M on grapes, during fermentation or even when fermentation gets sluggish, improves fermentation kinetics and cleanliness. Enartis Stab Micro M can also be used to help initiate native fermentation. **10 g/hL** on grapes or during fermentation.

#### PROTECT BOTRYTIS INFECTED GRAPES

Enartis Stab Micro M removes *Botrytis* spores, preventing from higher contamination and oxidation. **10 g/hL** at harvest.

#### REDUCE VOLATILE PHENOLS AND OFF-FLAVORS

Enartis Stab Micro can remove volatile phenols and other potential off-flavors due to microbial spoilage.

#### REDUCE METAL CONTENT, IMPROVE WINE OXIDATIVE STABILITY AND INCREASE WINE AGEING POTENTIAL

Chitosan has a strong affinity for iron and copper, catalyzers of oxidation reactions. As well, chitosan can remove some easily oxidable phenols, precursors of oxidation. As a result, wines treated with Enartis Stab Micro and Enartis Stab Micro M are more resistant to oxidation and show a higher ageing potential.

Please call (707) 838-6312 for more information.

