

TOOLS AND SUGGESTIONS FOR IMPROVING MICROBIOLOGICAL STABILIZATION

Ongoing climate change is causing a significant imbalance in grape ripening. This is reflected with must with higher pH values, which are more susceptible to microbiological contamination, exacerbated by the reduced effectiveness of SO₂ at high pH values. Under these conditions, it is essential to adopt a strategy of prevention and microbiological control throughout the winemaking process to prevent deterioration in quality.

Alternative Bioprotection Solutions

Enartis Bioprotective Solutions are a viable alternative to sulfur dioxide, providing natural protection against a wide range of contaminating micro-organisms. Non-allergenic and unaffected by pH, these solutions are easily adapted to all winemaking steps.

1

Antimicrobial protection and cleanliness at an early stage



The use of **EnartisPro Q** beginning at grape harvest and during fermentation helps to limit the proliferation of contaminating microorganisms and improve the sensory cleanliness of final wines.

2

All-around prevention and treatment of contaminants



EnartisStab MICRO M eliminates and prevents the development of contamination bacteria and yeast in must and wine. It prevents the development of indigenous non-*saccharomyces* and oxidative yeast, controls the development of *Brettanomyces*, and reduces lactic and acetic bacteria.

3

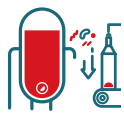
Controlling unwanted malolactic fermentation



EnartisStab MICRO ZERO effectively inhibits the development of lactic acid bacteria and stops unwanted malolactic fermentations in progress.

5

Pre-bottling microbiological control



Filtration is an important step. **EnartisPore** cartridges guarantee microbiological stability and help avoid contaminant proliferation in the bottle.

4

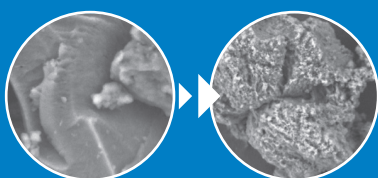
Winning synergy during the refinement phase



The use of **HIDEKI**, a blend of tannins with powerful antioxidant effects and high bacteriostatic action, provides complete protection against bacterial proliferation. It is recommended in synergy with chitosan treatment.

Why is Enartis chitosan more efficient?

Enartis has developed a unique chitosan activation process obtained from *Aspergillus niger* that aims to increase the positive molecular charge and enlarge the contact surface of the chitosan. This process increases the spectrum of action on contaminating microorganisms, making the product more effective and faster acting than traditional chitosan.



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Inspiring innovation.

Additional considerations




What are the microbiological risks during winemaking?

During the life of wine, it is possible to encounter various microbiological hazards. These can occur from grape harvest to bottling. The presence of contaminants such as non-saccharomyces and oxidative yeast, acetic or lactic acid bacteria, or numerous others (e.g. *Brettanomyces*, *Oenococcus*, *Pediococcus*, *Acetobacter*, *Lactobacillus*, *Zygosaccharomyces*, *Schizosaccharomyces*) can generate considerable problems that impact final wine quality.

Poorly managed contamination can lead to:

- ✓ stuck fermentations
- ✓ increased volatile acidity
- ✓ production of undesirable sensory compounds (e.g. volatile phenols)
- ✓ oxidation leading to loss of the color and aroma
- ✓ production of high quantities of acetaldehyde

A focus on microbiological stabilization

 ENARTIS RECOMMENDATIONS	 OBJECTIVE	 DOSAGE
EnartisStab MICRO M Activated chitosan Inactivated yeast	Broad-spectrum antimicrobial action for must and wine	5 - 20 g/hL
EnartisStab MICRO ZERO Activated chitosan Fumaric acid Tannins	Antibacterial action for wine, control the development of unwanted malolactic fermentation in whites and rosés	20 - 40 g/hL
EnartisTan HIDEKI Gallic, ellagic, and condensed tannins	Bacteriostatic and antioxidant action	5 - 10 g/hL
EnartisPro Q Activated chitosan Yeast hulls	Increase sensory cleanliness and control contaminating microorganism in must	10 - 30 g/hL
EnartisPore PVDF Filter cartridges with polyvinylidene fluoride (PVDF) membrane	Ensure the highest quality filtration and microbiological safety	