Tips for a SUCCESSFUL MALOLACTIC FERMENTATION

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Confidence for Winemakers

Malolactic fermentation (MLF) is often considered a simple conversion process of malic acid to lactic acid by *Oenococcus oeni* bacteria. Additionally, by choosing a specific strain, malolactic fermentation represents the final opportunity to reduce herbaceous notes, enhance fruit aromas, increase aromatic complexity and improve balance and structure of wine.

WHAT ARE THE RISKS OF A SPONTANEOUS MLF?

Uncontrolled, spontaneous MLF can result in the production of off-characters such as yogurt, rancid, sweat, burnt matches or even rotten fruit. Another undesirable consequence of spontaneous growth is the production of biogenic amines. Inoculating with selected *Oenococcus oeni* ensures the rapid onset of MLF and better control over the production of aromas and wine mouthfeel.

THE ADVANTAGES OFFERED BY ENARTISML BACTERIA

- Successful malolactic fermentation even in difficult conditions
- Increase aromatic complexity
- Reduce herbaceous notes and increase fruit aroma
- Guarantee healthy wine
- Dominance of the inoculated strain over indigenous flora

Principal factors influencing growth, viability and activity of lactic acid bacteria

Factors	Tolerance Limits	Optimal Range
Alcohol (% v/v)	15	13
pH	<3.1	>3.4
Free SO_2 (mg/L)	15	<8
Total SO_2 (mg/L)	60	<30
Temperature	<12°C or >28°C (<54°F or >82°F)	17-24°C (63-75°F)

How to choose an ML bacteria strain

Each strain of bacteria performs best within specific conditions. The Quick ML Activity Test offered by Vinquiry Laboratories by Enartis USA rates wines based on fermentation conditions and recommends the appropriate bacteria strain and, if needed, suggested adjustments in order ensure a successful MLF.

Technical specifications of Enartis strains

Principal Factors	EnartisML Silver	EnartisML MCW	EnartisML Uno
Species	*Oenococcus Oeni*	*Oenococcus Oeni*	*Oenococcus Oeni*
pH Tolerance	> 3.1	>3.1	> 3.3
Free SO_2 Resistance (mg/L)	<10	<10	<10
Total SO_2 Resistance (mg/L)	<45	<40	<40
Alcohol Tolerance (% v/v)	> 15	>15	<15
Speed	High	Moderate/High	High
Sensory Characteristics	Clean, floral, fruity and complex aromas; respects color; improves structure, volume and aromatic intensity.	Contributes buttery character, aroma complexity, softness and broadness of wine flavors.	Maintains color intensity; respects varietal aroma and olfactory cleanliness.

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When can we start malolactic fermentation?

Malolactic bacteria can be added to wine at different stages:

24-48 hours	About 15-20 g/L sugar	After
after yeast inoculation	**from the end of alcoholic fermentation**	alcoholic fermentation
CO-INOCULATION	**SEQUENTIAL INOCULATION**	**STANDARD METHOD**

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Save time. More intense color. More complex aromas.

Selected strains not only avoid the risk of contamination by other microorganisms, but also produce fresh, fruity, color-intense wines and save time and energy!
The best strategy is to use an EnartisFerm yeast that works in synergy with EnartisML depending on the goal.

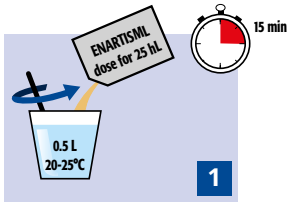
Bacteria Preparation and Nutrition

Like all organisms, bacteria must eat to survive, develop and be vital. Bacteria need an acclimatization phase before entering the hostile environment of wine.

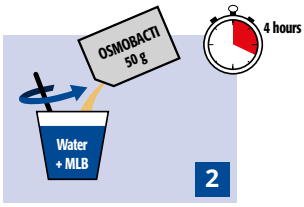
NUTRIFERM OSMOBACTI is an activator and regulator of osmotic pressure that helps malolactic bacteria survive the difficult growing conditions in wine. When used at the end of rehydration and before inoculation, NUTRIFERM OSMOBACTI increases cell survival rate and, consequently, allows for a more rapid start and faster completion of malolactic fermentation.

NUTRIFERM ML is a specific activator for malolactic fermentation. It provides polysaccharides, amino acids, micronutrients, vitamins and cellulose. The combined effects of its components stimulate cellular multiplication, ensures the dominance of the inoculated strain over indigenous flora and significantly reduces the duration of malolactic fermentation. In difficult conditions or in the case of fermentation arrest, its use can be decisive for the success of MLF.

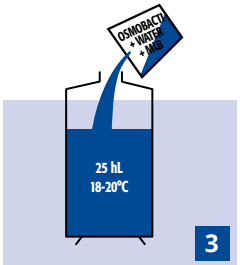
Protocol for ML bacteria preparation and inoculation. Direct addition, 25 hL



Rehydrate 25 hL package of EnartisML bacteria in 500 mL of chlorine-free water at 20-25°C. Stir gently and wait 15 minutes.



Add Nutriferm Osmobacti to the EnartisML bacteria slurry in order to improve survival rate and activate EnartisML bacteria. Stir gently and let stand for 4 hours at 18-20°C.



Stir the suspension gently and add to wine during pump-over or mixing.

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Inspiring innovation.

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