

MLF management in wines with a low L-malic acid concentration (< 1 g/L).

MLF can be complicated in wines with a low L-malic acid content because the bacteria do not have enough substrate, hence they struggle to grow.

L-MALIC ACID CONCENTRATION < 1 g/L

Use the malolactic bacteria's natural «reservoirs» of malolactic enzymes. Each bacterial cell contains a quantity of malolactic enzymes in its cytosol. Even if the cell fails to develop, these enzymes have a residual activity in the wine, and can be put to use.

In a conventional inoculation this enzyme activity is not sufficient to fully complete the MLF. The bacteria must first grow to produce a sufficient quantity of enzymes.

In contrast, when the concentration of L-malic acid is less than 1 g/L, the enzymatic activity of a malolactic starter is sufficient and proportional to the amount of bacteria used.

It is estimated that 1 g/hL of malolactic bacteria degrades about 0.3 g/L of L-malic acid. By using **MALOSTART®**, which provides essential cofactors for malolactic enzymatic activity we optimise this rate of conversion.

2 g/hL of a malolactic starter + 20 g/hL of **MALOSTART®** are usually sufficient to degrade L-malic when the initial concentration is below 1 g/L, regardless of proliferation of the bacteria.



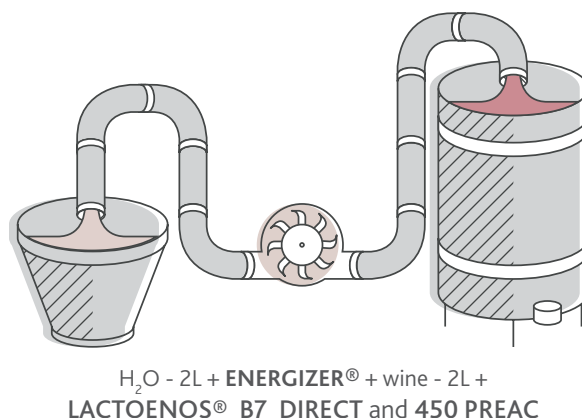
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Example for 50 hL:

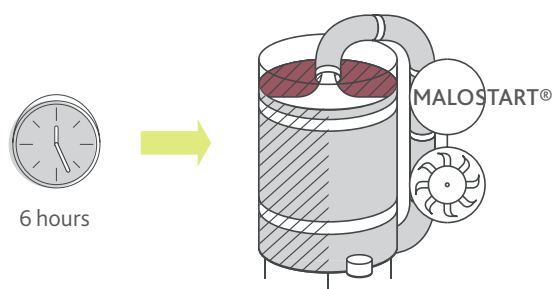
- 1 Preparation of the starter: Rehydrate the 2 sachets each for 50 hL of bacteria **LACTOENOS® B7 DIRECT** or **450 PREAC** in a mix of non-chlorinated water (2L), wine (2L) and the **ENERGIZER®** supplied with the bacteria. Wait 15 minutes.



- 2 Add the bacteria and homogenise.



- 3 After 6 hours add the **MALOSTART®** (20 g/hL) and homogenise.



Maintain the temperature at 20°C (68°F).

NB: This protocol should be applied in the case of a wine whose initial content of malic acid is low (<1 g/L). If MLF stops, apply the "MLF restart Protocol".