FML EXPERTISE® C

Selected lactic acid bacteria intended for high acidity white wines. Preparation controlled by the microbiology laboratory of the "Direction Qualité et Développement Durable du CIVC" (Epernay, France).

FML EXPERTISE® C is especially suitable for white wines with a very low pH and a moderate alcoholic degree, such as base wines for the bottle fermentation of sparkling wines.

MICROBIOLOGICAL AND OENOLOGICAL PROPERTIES

- pH tolerance ≥ acid 2.9
- Alcohol tolerance: up to 14% vol.
- Favorable temperatures for the deterioration of malic acid 18 à 25°C (advised temperature 20°C)
- Bacteria cinnamoyl esterase negative: cannot produce precursors for ethylphenol production by *Brettanomyces*

INSTRUCTIONS FOR USE

To succeed an inoculation of a selected wine bacteria, one must bear it in mind as early as the grape harvest:

- by adding moderate amounts of sulphite to musts,
- by preparing the starter from the grape musts. This operation allows the bacteria to adapt progressively to the alcohol,
- by maintaining the temperature of the fermentation at between 18 and 20°C.

PROTOCOL FOR THE PREPARATION OF A MALOLACTIC FERMENTATION STARTER FOR MUST USING FML EXPERTISE® C

The reactivation of bacteria in the must allows the microorganisms to adapt progressively to the alcohol. The proposed protocol should be implemented on **juice having received a halfdose of sulphur dioxide and no chaptalization, simultaneously preparing the bacteria's Reactivation Medium and the wine which is intended for the Starter**. This allows the malolactic fermentation (MLF) to be achieved **without heating,** by reducing the length of time necessary for the activation of the starter and the duration of the malolactic fermentation.

From a complete "marc" ("cuvee" and "taille") of 25.5 hL with half dose of SO_2 and no chaptalization:

Reactivation phase and the "malolactic fermenting starter" have to be realized at the same time.

REACTIVATION		MALOLACTIC FERMENTING STARTER
• "Taille" with half of the dose of SO_2: 0.75 hL • Hot water: 0.75 hL • Activator **ATOUT MALO NATIVE**: 0,75 kg • Bacteria **FML EXPERTISE® C**: 600 g • Yeast **LEVULINE CHP®**: 75 g	After 3 days	• Cuvee: 20.5 hL • Taille: 4.25 hL • Levures LEVULINE CHP® : 500 g
3 hL Tank Temperature of 25°C		**27 to 30 hL tanks Temperature of 25°C during the AF then 20°C during the MLF**

Reactivation phase

In a 3 hL container, dilute 0.75 hL of "taille" with the same volume of hot water to get a final temperature of 25°C.

Add the **ATOUT MALO NATIVE** (0.75 kg), preferably in a part of the hot water before incorporation in the must, to facilitate the distribution. The activator could thus increase the pH of the reactivation medium till 3.2 to 3.5 (it is consequently not necessary to control the pH during this phase).
Add directly (without any rehydration) in the reactivation medium 75 g of the yeasts **LEVULINE® CHP** and 600 g of the bacterias **FML EXPERTISE® C**. Sprinkle these powders, stirring the medium.
Keep the temperature of the reactivation medium at 25°C. After 3 days, add the reactivation medium into the malolactic fermenting starter (analytic controls are not necessary).

Malolactic fermenting starter

The rest of the "marc" (20.5 hL of "cuvee" + 4.25 hL of "taille") is blended in a tank of 27 to 30 hL. This must starts the fermentation with 500 g of the yeasts **LEVULINE® CHP** previously rehydrated in a mix must/water (1/2 h at 35°C). The temperature of fermentation of the starter is maintained at 25°C.
After 3 days, the reactivation medium can be incorporated in the fermenting starter. As soon as the alcoholic fermentations is finished, maintain the temperature at 20°C.

Use of the "malolactic fermenting starter"

The malolactic fermenting starter is used when the decrease of the acidity is equivalent to the 2/3rd of the acid malic degradation. This stage is evaluated: by the malic acid analysis (final content is roughly 1.5 g/L) or by the decrease of the total acidity (roughly 1.5 to 2 g H_2SO_4/L compared to the one of the must).
The analytic control of the malolactic fermenting starter is done after 6 days, then every 2 days.

Nutritional complement recommended For the wines likely to have deficiencies in essential nutrients for lactic bacterias (must with a nitrogen deficiency, botrytized must, must very clarified, wine from Chardonnay…): add 20 to 30 g/hL of **ATOUT MALO BLANC** before inoculation with the starter of **FML EXPERTISE® C.**

This protocol has been suggested by the CIVC and is related to the winemaking of sparkling wines (Cf. article "How to do the malolactic fermentation without heating" published by the CIVC in the review "Le Vigneron Champenois – June 2009).

INSTRUCTION FOR USE ON WINE

Example for 100 hL (or any other volume, taking into account the values in % and in g/L):

Reactivation	
• "Taille" with half of the dose of SO_2: 10 L (or 3 % of the starter) • Hot water: 10 L (ou 3 % of the starter) • Activator ATOUT MALO NATIVE: 100 g (or 5 g/L) • Bacterias FML EXPERTISE® C : 80 g (or 4 g/L) • Yeasts LEVULINE® CHP : 10 g (or 0,5 g/L)	**20 liters**

↓ After 3 days

Malolactic fermenting starter	
• Non-chaptalized must with half of the dose of SO_2 : 3 hL (or 3 % of the volume to inoculate) • Yeasts LEVULINE® CHP : 60 g (or 0,2 g/L)	**3 hL**

↓ When the malic acid is roughly 1.5 g/L

Tar	
• 100 hL of fermenting wine or at the end of the AF	**100 hL**

PACKAGING AND STORAGE

- Dose for 50 g.
- Store unopened original sealed packaging: 18 months at 4°C or 36 months at -18°C.
- Once opened, use rapidly.
- Sealed packets can be delivered and stored for 3 weeks at ambient temperature (< 25°C) without significant loss of viability.

A Danstar product
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