# FML EXPERTISE®

## EXTREME

***Oenococcus oeni* bacteria resistant to difficult conditions: low pH, high alcohol.**
**Red, white, and rosé wines**

### APPLICATIONS

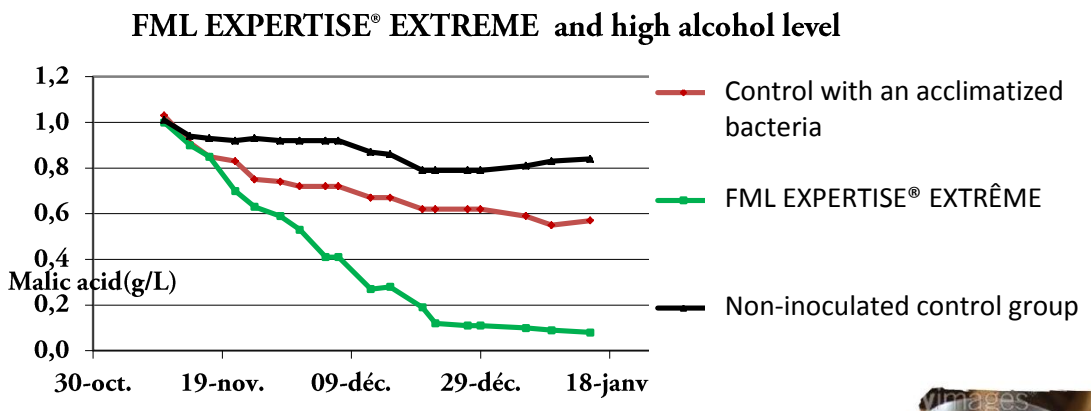
**Malolactic fermentation is a crucial stage in the winemaking process because it de-acidifies the wine, and it has also been consistently proven to enhance wine quality. Choosing the right lactic acid bacteria is therefore vital, and that is why we strive to develop bacterial preparations adapted to different wine conditions and desired wine profiles.**

**FML EXPERTISE® EXTREME is a malolactic starter kit containing selected and freeze-dried *Oenococcus oeni* bacteria and its specific activator. When used following the simple acclimatization protocol called 1-STEP® (developed by Lallemand), this combination of activator and bacteria allows for malolactic fermentation under extreme conditions (pH and temperature).**

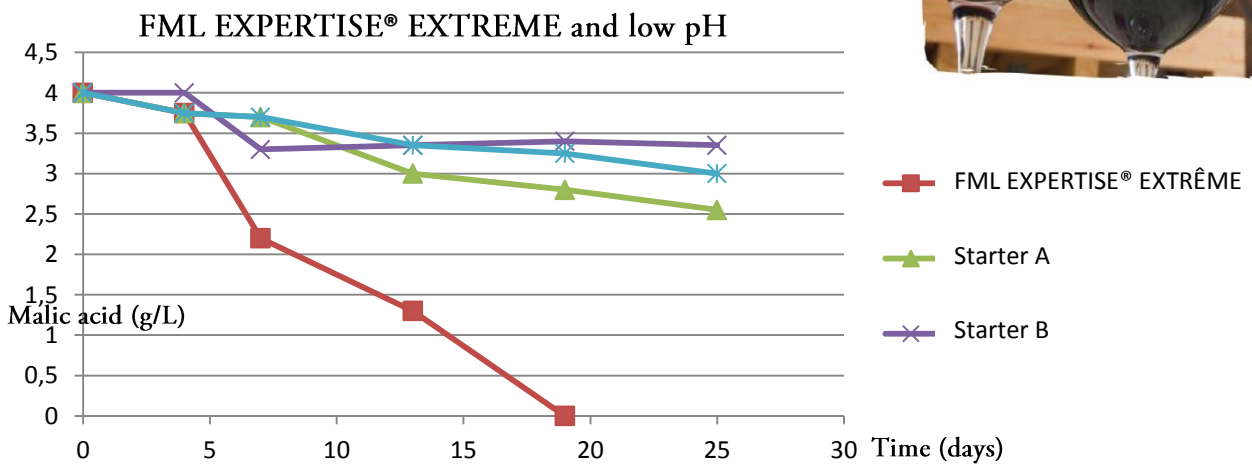
**The bacterial strain of the FML EXPERTISE® EXTRÊME has been chosen for its fermentative and organoleptic qualities during a selection program for white, red, and rosé wines. FML EXPERTISE® EXTRÊME is particularly suited to the production of traditional white wines, as well as fruity red wines or refined red wines.**

### MICROBIOLOGICAL AND ENOLOGICAL PROPERTIES

- **Rapidly establish themselves with a high survival rate after inoculation.**
- **Tolerates up to 15.5 % alcohol vol. if the pH is favourable.**
- **Tolerates pH values down to 3.**
- **Tolerates $SO_2$ levels of up to 60 mg/L of total $SO_2$, and 10 mg/hL of free $SO_2$. It is important to evaluate $SO_2$ levels in the must and wine before bacterial inoculation. When pH values are low, $SO_2$ in molecular form (which has an inhibitory effect on bacteria) is present in larger quantities.**
- **Tolerates temperatures > 14°C.**
- **Does not produce biogenic amines.**
- **Rapidly breaks down citric acid during MLF: moderate production of diacetyl, producing a buttery taste sought after for traditional white wine aroma profiles, while respecting the varietal aromas.**
- **"Phenol negative" bacteria, which means that FML EXPERTISE® EXTRÊME cannot degrade coutaric acid into coumaric acid which is the origin of volatile phenol precursors responsible for the development of the off-odors associated with *Brettanomyces bruxellensis*.**
- **On red wines, FML EXPERTISE® EXTREME contributes to the expression of the fruity characters and can also bring out spicy notes while providing good structural support for wine.**




**FML EXPERTISE® EXTRÊME and high alcohol levels. Malic acid degradation kinetics. Trial carried out on a challenging Pinot wine (pH 3.5 - alcohol 14.8% vol. - malic acid g/L).**




**For the 2005 German Riesling wine (pH 3.1 - 12% vol. - 16°C) inoculated with FML EXPERTISE® EXTRÊME, the MLF was finished faster.**

## *INSTRUCTIONS FOR USE*

### *Sequential inoculation (end of alcoholic fermentation)*

- **Dissolve the amount of activator required for 25 hl in 2.5 litres of water potable (25 liters for the dosage for 250 hL) at a temperature between 17 and 26°C.**
- **Then, dissolve the lactic acid bacteria of FML EXPERTISE® EXTREME kit in the water.**
- **Stir carefully for a few minutes to obtain a homogeneous suspension.**
- **Use this preparation after 20 minutes of rehydration maximum (or to 25 liters of wine for the 250 hL kit).**
- **Add this preparation to 2.5 litres of wine for the 25 hl kit.**
- **The pH of the wine used for the acclimatization phase has to be above 3.5 and its temperature has to be between 17 and 26°C.**
- **The duration of the acclimatization phase must not exceed 18 to 24 hours. If malic acid content is < 1.2 g/L, wait only for 8 to 12 hours.**
- **After 18 to 24 hours, add this preparation to the tank to be inoculated.**
- **Limit the additions of $SO_2$ to the musts to be inoculated.**
- **Do not add $SO_2$ to the wine before inoculation.**

- **These are the recommended temperature ranges for malolactic fermentation:**
  - **<u>White wines:</u> 16°C to 20°C. However, for white wines with low pH levels (< 3.1), high alcohol levels (> 14.5% vol.), or $SO_2$ levels > 45 mg/L, it is highly recommended that temperatures be maintained at roughly 16°C to 18°C.**
  - **<u>Red wines</u>: 17°C to 25°C. However, for red wines with low pH levels (< 3.1), high alcohol levels (> 14.5% vol), or $SO_2$ levels > 45 mg/L, it is highly recommended that temperatures be maintained at roughly 18°C to 22°C.**
- **Check malolactic fermentation process every 2 to 4 days ($CO_2$ emissions and/or levels of malic acid).**

**FML EXPERTISE® EXTREME is perfectly suited to early inoculation, in other words, during alcoholic fermentation (density of 1020-1010). In this case, it is used in the same manner except that all operations take place on the fermenting must rather than on the wine.**

**If the wine presents with limiting characteristics (highly clarified wines, low pH, high $SO_2$ and alcohol levels, organic nitrogen deficiency, fermentation problems, etc.), add 20 g/hL of ATOUT…MALO™ MBR to the wine at the end of alcoholic fermentation.**

## *Co-inoculation on must (addition of bacteria from 24 to 48h after yeast addition)*

**This instruction for use is valid under the following conditions: pH > 3.4 – Content of total $S0_2$ grape/ must < 8g/hL - Alcohol < 15% vol. - Temperature < 27°C.**

- **Mix and dissolve content of the activator sachet into 2.5 liters of drinking water for a 25 hL dosage (and in 25 liters of water for the dosage for 250 hL) at a temperature of between 17 and 26°C.**
- **Add content of the bacteria sachet and dissolve carefully by gentle stirring. Wait for 2 hours maximum.**
- **Then, transfer the rehydrated mix into the fermenting tank.**
  - **24h after yeast addition, if the total $SO_2$ content is < 4g/hL.**
  - **48h after yeast addition, if the total $SO_2$ content is < 8g/hL.**
- **Insure a good distribution of bacterias in the tank.**
- **Check MLF activity (malic acid degradation every 2-4 days) and volatile acidity.**

## *PACKAGING*

**The FML EXPERTISE® EXTRÊME kit is available in quantities for 25 hL or for 250 hL.**

## ∽ STORAGE & TRANSPORT ∽

**18 months at 4°C.**

**36 months at -18°C.**

**Once opened, use rapidly.**
**Can withstand a few days at room temperature.**
**The quality of the FML EXPERTISE® EXTREME is preserved if the product is stored at room temperature at a temperature below 25°C during 1 week. Similarly, their quality is not affected by temperature variations during transport provided that their frequency and intensity are limited:**

**Do not expose the product at a temperature above 30°C.**

**Limit the number of temperature peaks between 25 and 30°C.**

A Danstar product, distributed by:

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