

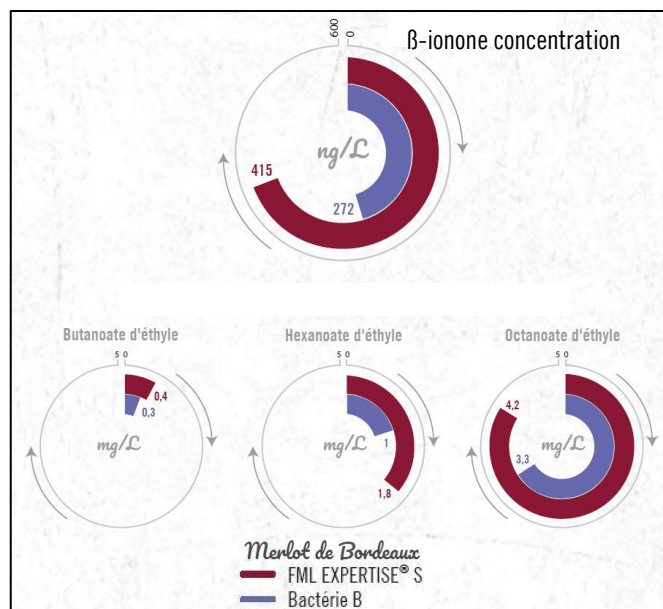
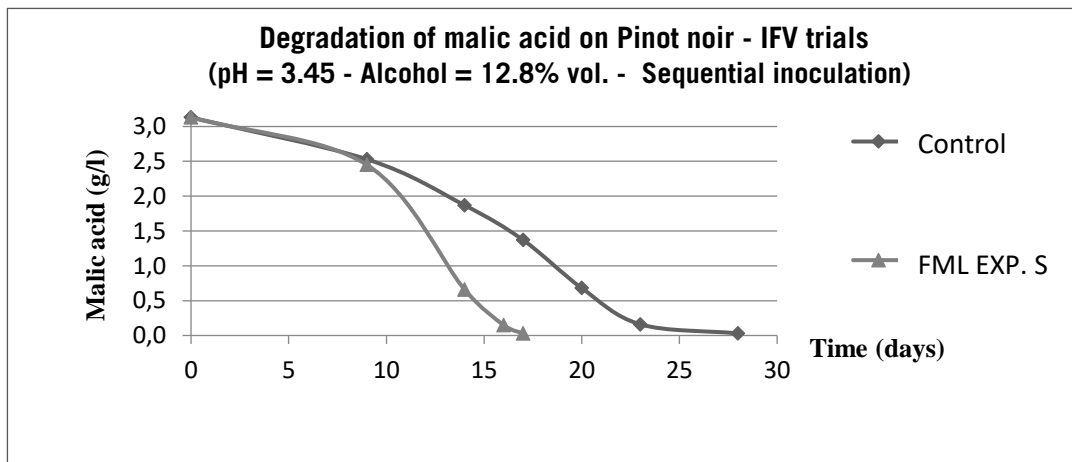
Direct inoculation bacteria *Oenococcus oeni* selected by the Institut Français de la Vigne et du Vin (IFV), unité de Beaune.

The MBR™ form of lactic acid bacteria represents a Lallemand specific process that subjects the lactic acid bacteria cells to various biophysical stresses, making them better able to withstand the rigors of direct addition to wine. The conditioned MBR™ lactic acid bacteria are robust and possess the ability to conduct reliable malolactic fermentation (MLF).

MBR™ process
direct inoculation

MICROBIOLOGICAL AND OENOLOGICAL PROPERTIES

- pH tolerance ≥ 3.3
- Alcohol tolerance: up to 14.5% vol.
- SO₂ tolerance : up to 50 mg/L (pay attention to molecular SO₂ at low pH)
- Temperature tolerance: $\geq 14^{\circ}\text{C}$
- Sensory contribution:
 - Production of diacetyl: moderate in sequential inoculation and low in co-inoculation
 - Enhance the « red fruit » expression, without any dominant lactic notes
- No production of biogenic amines
- Bacteria cinnamoyl esterase negative: cannot produce precursors for ethylphenol production by *Brettanomyces*
- Low volatile acidity production
- Suitable for co-inoculation and sequential inoculation



INSTRUCTION FOR USE



Use one sachet for right quantity of hL indicated on label.
Lowering the dosage or doing cross seeding or pitching methods will reduce the bacteria performance.

Sequential inoculation (post alcoholic fermentation)

- **Direct inoculation without rehydration:** open the sachet and add the bacteria directly into the tank from the top of the tank and homogenize.
- **OR direct inoculation with rehydration step:** for best distribution, you can rehydrate the packet of freeze-dried selected wine bacteria in 20 times its weight of clean chlorine free water at 20°C for a maximum 15 minutes. Add this suspension directly to the wine towards the end of the alcoholic fermentation.

For these two options:

- Recommended temperature: from 17 to 25°C for red wines - from 18 to 22°C in limiting conditions (high alcohol > 14.5% vol. or low pH < 3.1 or high SO₂ > 45 mg/L).
- Check malolactic fermentation activity (malic acid degradation) every 2 to 4 days.
- Stabilize wine once malolactic fermentation (MLF) is finished.
- In limiting conditions (overclarified wines, low pH, high SO₂ and alcohol level, etc.): rehydrate bacteria with **ATOUT MALO™ NATIVE** (20 g/hL) and before the bacteria inoculation, add **ATOUT MALO™ ROUGE** (20 g/hL).

Co-inoculation (inoculation of bacteria 24 to 48 hours after addition of yeast)

1/ **Yeast addition:** rehydrate and inoculate the selected dry yeast according to the instructions, preferably in presence of a rehydration nutrient.

2/ **Bacteria inoculation depending on sulphite addition to the grapes:** if sulfite < 5 g/hL, wait for 24 hours; if sulfite = 5 - 8 g/hL, wait for 48 hours.

- **Direct inoculation without rehydration:** open the sachet and add the bacteria directly to the must/wine from the top of the tank or during a pumping-over.
- **OR direct inoculation with rehydration step:** for best distribution, you can rehydrate the packet of freeze-dried selected wine bacteria in 20 times its weight of clean chlorine free water at 20°C for a maximum 15 minutes. Add this suspension directly to the must/wine to be fermented.

For these two options:

- Assure a good distribution.
- Carefully monitor must temperature, which must be below 30°C at lactic acid bacteria inoculation (alcohol < 5% vol) and below 27°C when the level of 10% of alcohol is reached.
- Complex or organic nutrients addition at 1/3rd of alcoholic fermentation is recommended.
- Monitor malic acid and volatile acidity. If MLF takes place during alcoholic fermentation and an unusual increase in volatile acidity is observed add lysozyme (150-200 mg/L) or a chitin derivate or SO₂.
- Stabilize wine once malolactic fermentation is finished.

PACKAGING AND STORAGE

- Dose for 2.5 hL, 25 hL or 250 hL.
- 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.

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OENOFRANCE

OENOFRANCE

79 avenue A.A. Thévenet - CS 11031 - 51530 Magenta - France
Tél. : 33 (0)3 26 51 29 30 / Fax : 33 (0)3 26 51 87 60 / www.oenofrance.com

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