PROTOCOL P

Fermentation restart protocol

Malolactic fermentation

Problems regarding malolactic fermentation (MLF) in wine can have different origins:

- Competition from residual yeasts.
- Wine toxicity: the presence of inhibiting compounds (ethanol, SO_2, medium-chain fatty acids).
- Bacterial deficiency.
- Low level of nutrients necessary for the bacteria.

For each of these situations, there is a specific protocol:

1 DECREASE COMPETITION WITH RESIDUAL YEASTS:

The addition of yeast cell walls (**OENOCELL®**, 20 to 40 g/hL - 200 to 400 ppm) while pumping over in a closed circuit is effective in eliminating compounds that inhibit bacteria. This operation should take place 24 to 48 h before inoculation with bacteria to ensure an optimal survival rate.

2 USE A RELIABLE BACTERIA PREPARATION:

Bacterial strains have different levels of resistance to difficult wine conditions depending on their individual genetic profiles. **LACTOENOS® B16 STANDARD** is one of the strongest strains available, under difficult conditions.

3 ACTIVATE THE BACTERIA:

To correct nutrient deficiencies in the medium, **MALOBOOST®** addition is recommended after the bacterial inoculation to provide the nutrients needed by the lactic acid bacteria.

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If *Brettanomyces bruxellensis* is present, and depending on the level of contamination consider a racking, or even filtration (1 µm) to eliminate this undesirable population. The medium will then be depleted in the lees necessary for lactic acid bacteria nutrition and the addition of a nutritional supplement will be essential.

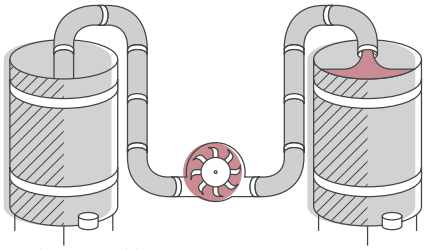
MALOLACTIC FERMENTATION RESTART PROTOCOL

A

If contaminated with *Brettanomyces*:

- Rack/centrifuge anaerobically.

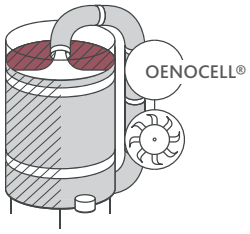
Note: if Brettanomyces population is higher than 10^3 cell/mL, filter the wine (1 µm).



Wine with MLF problems

B

- Incorporate (20 g/hL - 200 ppm)).
- Mix wine anaerobically every 12 hours for 48 hours, or continuously if possible.



C

- Prepare the **LACTOENOS® B16 STANDARD** reactivation medium by following steps 1 and 2 in the "Protocol for reactivation of **LACTOENOS® B16 STANDARD** in wine" available in the product data sheet.
- Inoculate the starter with this reactivation medium by following step 3 of the same protocol.

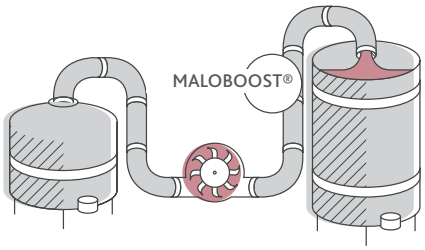
Reactivation medium: **LACTOENOS® B16** + reactivator

Starter with **MALOBOOST®**

D

Inoculation and nutrition:

- When the starter is ready (see protocol), add to the wine prepared in step B.
- Add **MALOBOOST®** (20 to 40 g/hL - 200 to 400 ppm).
- Mix thoroughly in a closed circuit.



Starter prepared in step C

Wine prepared in step B

Important: maintain a stable temperature, between 18°C - 25°C (64 - 77 °F), during all stages and until the end of MLF.

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