

# INOBACTER™

## BACTERIA



**Oenological lactic acid bacteria with re-activation and acclimatisation phases (starter). For very low pH musts and wines.**

### ↓ OENOLOGICAL APPLICATIONS

In the most acidic wines (pH <3.2), malolactic fermentation is difficult to initiate spontaneously. Moreover, these random spontaneous triggers can have harmful sensory consequences on the finesse and elegance of the wines.

**INOBACTER™** is a known and recognised asset to avoid these dangers and to initiate malolactic fermentation in a safe manner in wines.

**INOBACTER™** is used following a three stage protocol (reactivation, starter, seeding the vat) which enables bacteria to adapt to the lowest pHs.

As the winemaker chooses, the bacteria can be added to the must, during alcoholic fermentation or at the end of it.

The very great tolerance of this strain under extreme conditions guarantees total effectiveness for metabolising malic acid.

### ↓ CHARACTERISTICS

- Preparation controlled by the microbiology laboratory of the « Direction Qualité et Développement Durable » of the CIVC.
- Species: *Denococcus oeni*.
- Viable population > 1.10<sup>9</sup> CFUs/g of powder.
- Particularly tolerant of low pHs (from 2.9)
- Alcohol tolerance: up to 14% vol.
- SO<sub>2</sub> tolerance: up to 50 mg/L total SO<sub>2</sub>.
- Optimal temperature ranges: between 18 and 22°C.
- In case of a combination of difficult conditions, these tolerance ranges (pH, alcohol, SO<sub>2</sub>, temperature) are more limited.
- Diacetyl production: very low.
- Volatile acidity production: low.
- No production of biogenic amines.
- Phenol-negative bacteria: do not produce volatile phenols or their precursors.

The **INOBACTER™** strain does not originate from, and does not come into contact during any of the production processes, with genetically modified organisms.

### ↓ DOSE RATE

- 0.72 g of bacteria/hL of wine or 4 g/L of reactivation medium.

### ↓ PACKAGING AND STORAGE

**INOBACTER™** is a kit containing a sachet of oenological bacteria and a sachet of special activator.

- Kits for seeding 25 hL, 100 hL, 500 hL, 1,000 hL and 2,000 hL of must or wine.

**INOBACTER™** must be kept cold. The powder retains its characteristics for at least 36 months (which is its shelf life) from the date of production if kept at -18°C and at least 18 months when stored at +4°C. The packaging in aluminium sachets keeps the bacteria out of contact with oxygen and moisture.

Sealed packets can be delivered and stored for three weeks at room temperature (< 25°C) without significant loss of activity and efficacy. However, an opened sachet should be used immediately as the freeze-dried powder is hygroscopic and the bacteria lose their activity very quickly.

# INOBACTER™

## INSTRUCTIONS FOR USE

### FOR USE IN CO-INOCULATION

#### STEP 1: Prepare the Bacteria Starter (BS) Medium

- Allow must to settle first day of harvest
  - Remove at least 3% of the volume of the tank into a separate vessel. Ensure the SO<sub>2</sub> < 40ppm, pH 3.2 - 3.3
  - Add 20-30g/hL of yeast (the one to be use to ferment the base wine) and 50 g/hL of **Fermaid® AT**. Maintain the temperature between 20-25°C
  - This will be used later in step 3.
  - This acclimatisation medium is ready when 2/3rds of the malic acid is consumed.

#### STEP 2: Reactivate the Bacteria

- Prepare the Reactivation Medium (RM)
  - Make up a juice / non-chlorinated water mixture as per the volumes in Table 1.
  - The volume is based on the size of Inobacter kit used.
  - Ensure it's at 25°C, pH 3.2-3.3, total SO<sub>2</sub> < 40ppm. Add the Activator and mix well.
- Bacteria Rehydration (BR)
  - Remove a volume of Reactivation Medium into separate container. The volume (see Table 1), depends on the size of INOBACTER™ sachet used.
  - Ensure the temperature of the medium is 23-25°C.
  - Add the contents of the bacteria sachet to this medium. Wait for 15 mins.
- Incorporate the Bacteria Rehydration (BR) mixture (Step C) into the Reactivation Medium (RM) (Step B). Maintain at 23-25°C.
  - WAIT** – This Reactivation Medium is ready when Malic Acid is < 1g/L

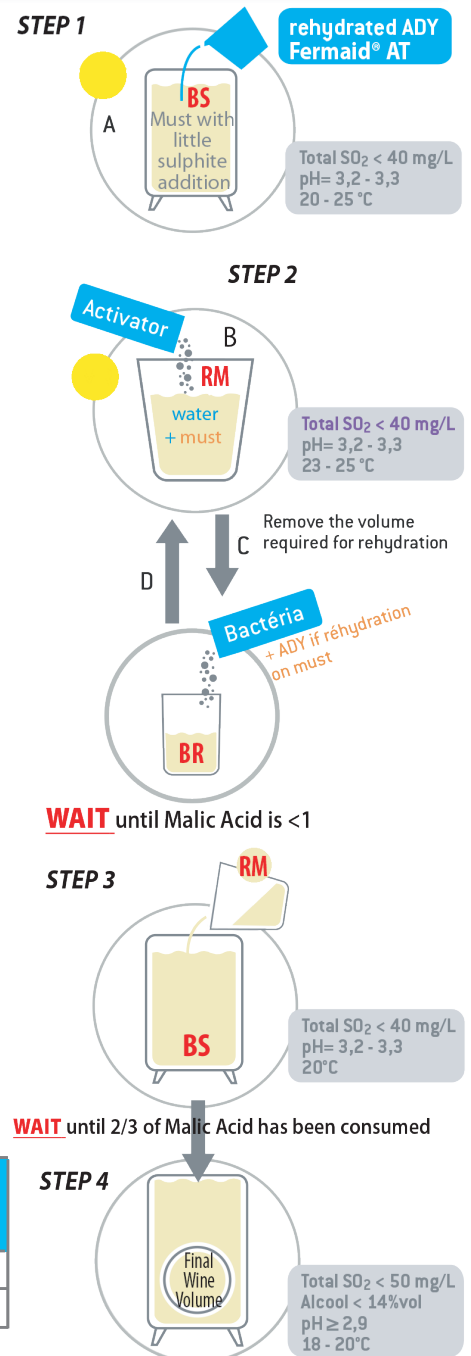
#### STEP 3: Acclimitisation stage of the bacteria

- Acclimitisation Mixture (AM)
  - When the Reactivation Medium (RM, Step 2) is ready, add to the Bacteria Starter Medium (BS), (Step 1).
  - Mix well and determine the malic acid concentration of this mixture.
  - Maintain at 20°C
  - When 2/3rds of the malic acid has been consumed in the Acclimatisation medium (AM), add it to the total volume of wine. Gently mix. Maintain at 18-20°C.

Table 1: Guidelines for Co-Inoculation

Total volume of wine to be inoculated	Inobacter Kit	Step 1 (a) - AM 3% of total must volume	Step 2 (b) - RM Total reactivation volume	Step 2 (c) Volume to be used for bacterial rehydration
2500L	25hL	75L	5L (2.5L juice + 10L water)	1L
10,000L	100hL	300L	20L (10L juice + 10L water)	2L

### CO-INOCULATION



# INOBACTER™

## INSTRUCTIONS FOR USE

### FOR USE IN SEQUENTIAL INOCULATION

#### STEP 1: Reactive the bacteria

- Reactivation Medium (RM)
  - Make up a wine / non-chlorinated water mixture as per the volumes in Table 1.
  - The volume is based on the size of Inobacter™ kit used.
  - Ensure it's at 25°C, pH 3.2-3.3, total SO<sub>2</sub> <40ppm
  - Add the Activator and mix well.
- Bacteria Rehydration (BR)
  - Remove a volume of the Reactivation Medium into a separate container. The volume is specified in Table 1, dependent on the size of Inobacter sachet used.
  - Ensure the temperature of the medium is 23-25°C.
  - Add the contents of the bacteria sachet to this medium
  - Wait for 15 mins
- Incorporate the Bacteria Rehydration (BR) mixture from step (b) into the Reactivation Medium (RM) from step (a).
  - Maintain at 23-25°C.
  - WAIT** – This Reactivation Medium is ready when the Malic Acid is <1g/L

#### STEP 2: Acclimatisation stage

- Acclimitisation Mixture (AM)
  - Remove 3% of the volume of wine to be inoculated into a separate tank. Refer to Table 1 for an example.
  - Add the Reactivation Medium to this wine. Mix well and determine the malic acid concentration of this mixture.
  - Maintain at 20°C
  - This Acclimatisation medium is ready when 2/3rds of the malic acid has been consumed.

#### STEP 3: Wine inoculation

- Add the Acclimatisation Mixture (AM) to the total volume of wine. Gently mix. Maintain at 18-20°C.

Table 1: Guidelines for Sequential Inoculation

Total volume of wine to be inoculated	Inobacter Kit	Step 1 (a) - RM Total Reactivation volume	Step 1 (b) Volume to be used for bacterial rehydration	Step 2 (c) 3% of total wine volume
2500L	25hL	75L	5L [2.5L juice + 10L water]	1L
10,000L	100hL	300L	20L [10L juice + 10L water]	2L

### SEQUENTIAL INOCULATION

