

## Pinnacle™ MLF Robust

### product information



#### Type:

**Pinnacle™ MLF Robust** is an *Oenococcus oeni* strain that was isolated in an extensive AWRI screening of novel bacteria under stressful malolactic fermentation conditions. **Pinnacle™ MLF Robust** was selected for its high alcohol tolerance ability and speed of malolactic fermentation. **Pinnacle™ MLF Robust** also enhances the complexity and mouthfeel of high alcohol wines.

#### Characteristics:

**Pinnacle™ MLF Robust** is a very concentrated, high cell count bacteria suited to malolactic fermentation in difficult conditions, especially high alcohol conditions. **Pinnacle™ MLF Robust** is fast, SO<sub>2</sub> resistant and does not produce detectable biogenic amines.

#### Application:

- **Pinnacle™ MLF Robust** covers a wide spectrum of wine applications, including high alcohol red wines rich in polyphenols and greater than 15% v/v ethanol.
- Adding notes of clean red berries and some spice, it imparts soft tannins to the wine.
- **Pinnacle™ MLF Robust** is suitable for sequential or co-inoculation.

#### Formulation:

Pure concentrated active freeze-dried culture of *Oenococcus oeni*, containing maltodextrin as carrier.

#### Instructions for use:

Open the sachet, add directly to the wine, and mix gently without any oxygen. For more difficult wines (low pH, high alcohol), rehydration with non-chlorinated water is recommended to keep the maximum viability/vitality. To do this, dilute 1:10 for 15 min at room temperature. However, if non-chlorinated water is not available then direct pitch is recommended.

#### Dosage:

1 g/hL  
This will bring a quantity of microorganisms sufficient to complete malolactic fermentation in all wines (even the most difficult) in a short time.

#### Storage conditions:

-18°C (-0.4°F).

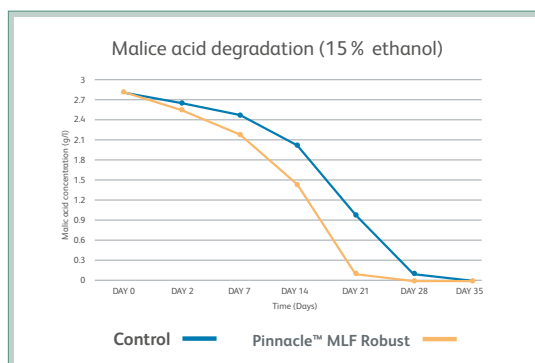
#### Shelf life:

Three years from date of manufacture when stored at -18°C (-0.4°F).

18 months from date of manufacture when stored at 4°C (39°F).

#### Packaging:

25g and 250g laminate sachets



#### Malic Acid Degradation Experiment Details:

Both the control and the **Pinnacle™ MLF Robust** used sequential inoculation in a red wine containing 15% alcohol. **Pinnacle™ MLF Robust** completed the malolactic fermentation in 21 days while the control was only able to finish the malolactic fermentation in 28 days.

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CHARACTERISTICS	
Minimum - maximum temperature range	15-27°C (59-81°F)
pH tolerance	≥ 3.2
Maximum free SO <sub>2</sub> resistance (mg/L)	< 18
Maximum total SO <sub>2</sub> resistance (mg/L)	< 50
Alcohol resistance (%v/v)	≤ 16.5%
Fermentation rate (malic-to-lactic conversion speed)	Very Fast
Fruity notes	Moderate red berries with good palate weight
Diacetyl notes	Using co-inoculation - Low; using sequential inoculation - Medium to High
Volatile acidity	Very Low
Biogenic Amines production	No
MICROBIOLOGICAL ANALYTICS	
Viable bacteria cells:	> 10 <sup>11</sup> cells/g
Yeast:	< 10 <sup>3</sup> CFU/g
Moulds:	< 10 <sup>3</sup> CFU/g
Acetic acid bacteria:	< 10 <sup>3</sup> CFU/g
E. coli:	Absent in 1g
Salmonella:	Absent in 25g
Lead:	< 2 mg/Kg d.m
Mercury:	< 1 mg/Kg d.m
Arsenic:	< 3 mg/Kg d.m
Cadmium:	< 1 mg/Kg d.m

**Physical properties:** Colour: beige/cream. Form: fine powder. Solubility: water soluble.

### Scientific background:

Malolactic fermentations are complete when a malic acid result of 'not detected' appears, which is usually < 0.05g/L by enzymatic analysis. However, a result of 0.1 g/L or less is low enough for the malolactic fermentation to be considered virtually complete and to minimise the risk of spoilage.

Product approved for oenological use, in accordance with the regulation (EC) n° 606/2009 and OIV codex.

The information presented is based on our research and commercial testing and provides a general assessment of product performance. Nothing contained herein is representative of a warranty or guarantee for which the manufacturer can be held legally responsible.

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