

## MaloStar Fruit

Oenological, citrate-negative bacterial culture of the second generation for a diacetyl and acetate reduced vinification of fruit-pronounced wines. The further developed strain *Oenococcus oeni* CN2 shows an improved nutrient uptake, resulting in a more rapid growth and thus a higher propagation rate and a quicker degradation of malate. The activation process, patented by Erbslöh, is conducted in a way to avoid pantothenic acid lack. It promotes the quick start of malo-lactic fermentation (MLF).

*Characterization:* MaloStar Fruit enables to conduct malo-lactic fermentation (MLF) in wines which undergo vinification with the aim to obtain fruit-pronounced wines by preservation of the natural citric acid of the grape. This further developed citrate-negative selection preserves the potential of additional aroma components which are lost in the course of spontaneous MLF and MLF with conventional starter cultures. In sensory evaluation the acid provides the wine with structure and freshness, the most important flavour components are well balanced. Citrate-negative means that the bacterial culture MaloStar Fruit lacks the ability to degrade citric acid. At the same time, the formation of diacetyl from citric acid is not taking place which would lead to lactic or buttery notes and would superimpose the fresh and fruity aromas. MaloStar Fruit offers increased safety for MLF since the citrate-negative property prevents, through the preservation of citric acid, the formation of additional volatile acid which is always formed in the course of spontaneous MLF or MLF with conventional starter cultures. A special cultivation method and the activation of the starter culture according to the patented process prevent a possible formation of volatile acid from glucose during MLF caused by pantothenic acid deficiency.

*Oenological properties:*

- Secure MLF of white and red wines
- Support of aromas by the preservation of citric acid
- No superimposition of fruit aromas caused by diacetyl derived from citric acid
- Reduction of the risk of volatile acid formation through citric acid preservation
- Also suitable for simultaneous inoculation
- SO<sub>2</sub>-sensitive

*Dosage:*

The double chamber bag containing the MaloStar Fruit bacteria culture and the activator, after activation, is sufficient for 2,500 L must/wine. Simultaneous addition is made 24 hours after the yeast into the must, or consecutive addition directly after alcoholic fermentation into the young wine still warm from fermentation.

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**Activation:** Pour 2.5 L water\* into a clean container and add the contents of chamber 1 – the activator – of the double chamber bag. Mix well. After 5 minutes add the contents of chamber 2 – the starter culture – and stir again thoroughly until completely suspended. Cover and allow to stand to let the developing CO<sub>2</sub> gas escape. Bacteria activation takes place at room temperature over a period of time of 6-8 hours. Stir for several times during this period to prevent, particularly in the initial phase, settling and, consequently, a lack of nutrients. Before adding to the must/wine to treat, adapt to beverage temperature (temperature difference < 4 °C), then add to the must/wine. Before applying the cultures, the most important wine/must parameters (pH-value, temperature, alcohol concentration and total SO<sub>2</sub>) should be harmonized with bacteria requirements.

The activation starts the bacteria metabolism under uptake of essential nutrients, above all pantothenic acid. A deficiency of pantothenic acid during MLF may stimulate the formation of acetate from glucose. As preventive measure, the bacteria culture was enriched during cultivation with nutrients to assure provision in sufficient quantities with this vitamin and thus reduce the risk of volatile acid formation from glucose.

**MLF conditions:**

- Free SO<sub>2</sub> < 10 mg/L
- Total SO<sub>2</sub> < 25 mg/L
- Inoculation temperature at least 18 °C. A later temperature decrease to cellar temperature does not affect an already started MLF
- pH-value > 3.2
- Alcoholic strength < 13.5 % by vol.

**Important: yeasts which are acid-preserving or cause high SO<sub>2</sub>-contents, as well as SO<sub>2</sub>-preserving vitamin C may, beyond a necessary sulphurizing of mash/must, lead to a strong increase of SO<sub>2</sub>-concentrations and thus to an inactivation of the starter cultures.**

**The oenologist advises:**

The citrate-negative and thus diacetyl reduced strain characteristic of MaloStar Fruit assures a secure malo-lactic fermentation in a short vinification time. After the end of MLF, no diacetyl management is required. In this connection, a keeping on the fine lees or SO<sub>2</sub> addition are not needed. A reduced sulphuring can be carried through immediately and increases safety by preventing a propagation of wild microorganisms.

**Packaging:** 1 aluminium double chamber bag.

The freeze-dried bacteria are packed under optimized conditions and covered with a protective gas layer.

**Storage:** *At a maximum of +4 °C for 24 months. A short-term warming during transport has no influence on activity.*

**\*Water:** Preferably use demineralised or distilled water (25 °C). It is also possible to use drinking water (25 °C), provided it is in accordance with the German drinking water regulation and contains not more than 0.3 mg Cl<sub>2</sub>/L.

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