

O-MEGA™

1-STEP™

MALOLACTIC FERMENTATION UNDER CONTROL

Oenococcus oeni

Secure and highly efficient wine bacteria



As a producer of wine lactic acid bacteria, Lallemand developed a specific 1-STEP™ production process to induce malolactic fermentation (MLF) of most red and white wines, in a wide range of oenological conditions. Highly efficient, the 1-STEP™ starter kit consists of a malolactic active freeze-dried *Oenococcus oeni* strain and specific activator. Excellent activity and high vitality of the 1-STEP™ starter culture are achieved during a short acclimatization step for a fast onset of malolactic fermentation.

DESCRIPTION

O-MEGA™ was isolated from nature and selected in South of France by the Institut Français de la Vigne et du Vin (IFV) for its high capacity to quickly achieve malolactic fermentation (MLF) in a very wide range of applications.

Produced with our specific 1-STEP™ process and with its fast acclimatization protocol, O-MEGA 1-STEP™ is a reliable and competitive wine bacteria able to have a rapid and high dominance in must or wine.

O-MEGA 1-STEP™ tolerates low pH, high alcohol conditions or low temperature.



BENEFITS & RESULTS

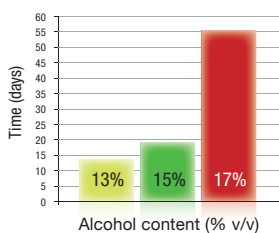
O-MEGA 1-STEP™ has a very fast kinetic of malic acid degradation under limiting conditions and can achieve a complete MLF even up to 17% vol. of alcohol, or at pH > 3.1.

Reliable on white, red and rosé wines, O-MEGA 1-STEP™ complements fresh and fruit driven wines and helps to stabilize red wine color because of its slower degradation of acetaldehyde.

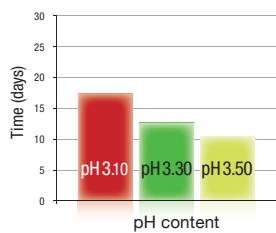
O-MEGA 1-STEP™ contributes to produce fresh and fruity wines from high maturity grapes. On normal mature grapes, O-MEGA 1-STEP™ reinforces the aging potential.

O-MEGA 1-STEP™ is also a bio-protection tool to protect wines against *Brettanomyces* when inoculated as soon as possible to prevent the excessive development of the spoilage yeast.

O-MEGA™ alcohol tolerance
Red wine – MLF duration at
pH 3.50 and 18°C



O-MEGA™ low pH tolerance
Rosé wine – MLF duration at
13% v/v and 18°C



PROPERTIES

- pH tolerance: ≥ 3.1
- T° tolerance: $\geq 14^\circ\text{C}$
- Alcohol tolerance: up to 16 % vol. (can tolerate up to 17% volume).
- SO₂ tolerance: up to 60 mg/L total SO₂ (pay attention to molecular SO₂ at low pH)
- Good implantation - short lag phase
- MLF kinetics: very fast
- Very low volatile acidity production
- No production of biogenic amines
- Late degradation of citric acid: very low production of diacetyl (no buttery or lactic notes)
- Bacteria cinnamoyl esterase negative: cannot produce precursors for ethylphenol production by *Brettanomyces*
- Low nutritional demand:
 - under more difficult MLF conditions, we advise to use a specific bacteria nutrient:
 - for white and rose wines to avoid amino-acids deficiencies and ensure a good growth of the selected bacteria,
 - for structured red wines to avoid amino-acids deficiencies and increase the resistance of the selected bacteria against certain inhibitory polyphenolic fractions.
- Higher color intensity



INSTRUCTIONS FOR OENOLOGICAL 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.

Co-inoculation (simultaneous alcoholic fermentation)

The 1-STEP™ activator and lactic acid bacteria can be used in co-inoculation without any acclimatization step.

- 1A.** Mix and dissolve content of the activator sachet in drinking water (temperature between 18 and 25 °C) according to the table below.

1-Step™ Kit	Volume of drinking water (L)
For 100 hL	10
For 250 hL	25
For 1000 hL	100

- 1B.** Add content of the lactic acid bacteria sachet and dissolve carefully by gently stirring.
- 2.** Transfer immediately the rehydrated mix (activator and lactic acid bacteria) into the fermenting must/wine 24 hours after the yeast is added.
- 3.** Monitor malolactic fermentation activity (malic acid degradation) every 2 to 4 days, as well as volatile acidity.

In cases of must with sulphite addition >8 g/hL, it is recommended to use the 1-STEP™ activator and lactic acid bacteria after alcoholic fermentation.

Recommended temperatures:

Carefully monitor must temperature, which must be below 30 °C at lactic acid bacteria inoculation (alcohol < 5% vol.) and below 27°C when 10% of alcohol is reached.

Sequential inoculation (post-alcoholic fermentation)

- 1A.** Mix and dissolve content of the activator sachet in drinking water (temperature between 18 and 25 °C) according to the table below.

	1A	2
1-Step™ Kit	Volume of drinking water (L)	Volume of wine (L)
For 100 hL	10	10
For 250 hL	25	25
For 1000 hL	100	100

- 1B.** Add content of the lactic acid bacteria sachet and dissolve carefully by gently stirring. Wait for 20 minutes.
- 2.** Add to this suspension the appropriate volume of wine (see table above) pH > 3.5, total SO₂ <45 ppm, no free SO₂ (temperature between 18 and 25 °C). Wait for 18 to 24 hours. If malic acid content is < 1.2 g/L, wait only for 6 to 10 hours.
- 3.** Transfer the activated malolactic bacteria starter culture into the wine according to the volume indicated on the kit. Monitor malolactic fermentation activity (malic acid degradation) every 2 to 4 days. Under more difficult conditions, add a specific bacteria nutrient.

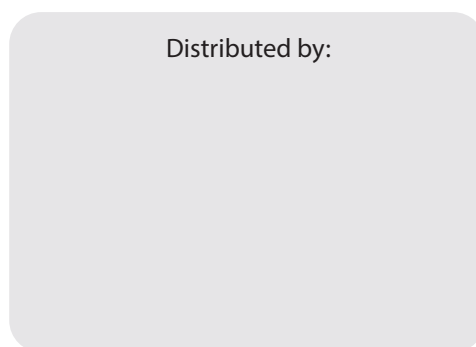
Recommended temperatures ranges:

- White wine / rosé wine: from 16 to 20 °C
- Red wine:
 - › If alcohol < 14.5% vol.: from 17 to 25 °C, with an optimal range: 18-22 °C
 - › If alcohol > 14.5% vol.: from 18 to 20 °C

PACKAGING & STORAGE

- Product in powder form obtained by lyophilization.
- Available in sachet for inoculation for 100 hL (2,640 US gal.), 250 hL (6,600 US gal.) and 1000 hL (26,400 US gal.).
- Once opened, activator and lactic acid bacteria sachet must be used immediately.
- Activator and lactic acid bacteria sachet must not be used separately.
- This product can be stored for 18 months at 4 °C/40 °F or 36 months at -18 °C/0 °F in original sealed packaging.
- Sealed packets can be delivered and stored for 3 weeks at ambient temperature (<25 °C/77 °F) without significant loss of viability.

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The information in this document is correct to the best of our knowledge. However, this data sheet should not be considered to be an express guarantee, nor does it have implications as to the sales condition of this product. January 2022.



WINE YEASTS



WINE BACTERIA



NUTRIENTS /PROTECTORS



SPECIFIC YEAST DERIVATIVES



ENZYMES



CHITOSAN



VINEYARD SOLUTIONS

LALLEMAND

LALLEMAND OENOLOGY

Original by culture