VP41™ 1-STEP®

MALOLACTIC FERMENTATION UNDER CONTROL

Oenococcus oeni

Highly tolerant strain for limiting conditions & very low diacetyl production.

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

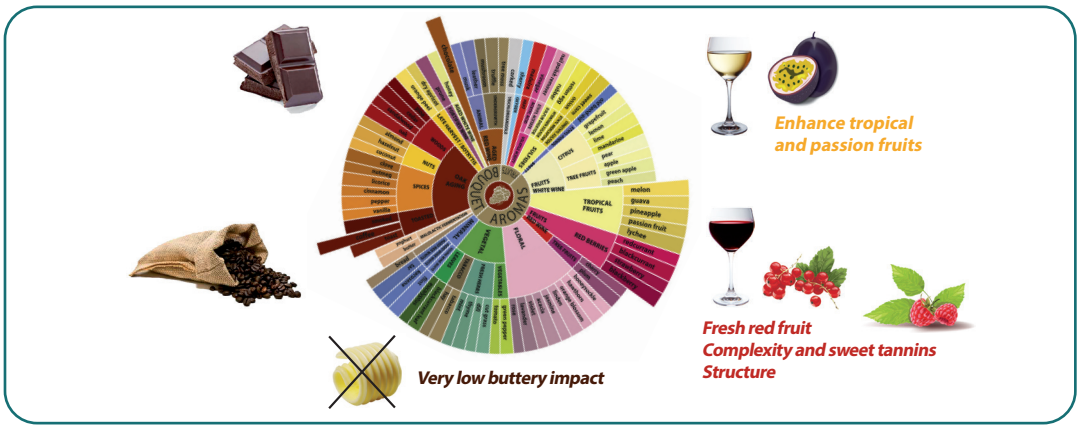
VP41™ was isolated from nature, in a hot region of Italy region during an extensive European Union collaboration (CRAFT). VP41 1-STEP™ is an *Oenococcus oeni* strain with unique performance and winemaking properties, able to achieve a complete MLF in limiting conditions.

Produced with our specific 1-STEP™ process and with its fast acclimatization protocol, VP41 1-STEP™ is highly reliable and very competitive, able to have a rapid implantation and dominance in must or wine.

BENEFITS & RESULTS

VP41 1-STEP™ is a highly tolerant strain, which can perform MLF under the most difficult winemaking conditions such as very high alcohol content or SO_2 content, or low pH.

Beyond bio-deacidification, VP41 1-STEP™ is used for its sensory contribution to fruity aroma. VP41 1-STEP™ is a very low diacetyl producer because of its very late and very slow degradation of citric acid.



VP41 1-STEP ™ is a bio-protection tool to protect wines against *Brettanomyces* when inoculated as soon as possible to prevent the excessive development of the spoilage yeast.

PROPERTIES

- pH tolerance: > 3.1
- Alcohol tolerance: up to 16% vol.
- SO_2 tolerance: up to 60 mg/L total SO_2 (pay attention to molecular SO_2 at low pH)
- T° tolerance: > 16 °C
- Low nutritional demand
- Good implantation
- MLF kinetic: fast
- Low volatile acidity production
- Bacteria cinnamoyl esterase negative: cannot produce precursors for ethylphenol production by *Brettanomyces*
- No production of biogenic amines
- Co-inoculation recommended

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 500 hL	50
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 must, 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 500 hL	50	50
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 SO_2 <45 ppm, no free SO_2 (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 temperature 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.), 500 hL (13,200 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.

Distributed by:

LALLEMAND AUSTRALIA

23-25 Erudina Ave,
Edwardstown, SA, 5039
australiaoffice@lallemand.com
+61 8 8276 1200