

HIGHLY TOLERANT STRAIN
FOR LIMITING CONDITIONS
VERY LOW DIACETYL
PRODUCTION

Lactic acid bacteria
selected from nature

VP41™

Oenococcus oeni



WEIN BAKTERIEN - BACTERIA PARA VINO - BATTERI PER VINO - BATTERIA PARA VINO - BACTERIA PARA VINO - BATTERI PER VINO - BATTERIA PARA VINO

APPLICATION

VP41™ was isolated in a hot region of Italy region during an extensive European Union collaboration (CRAFT) to select natural *Oenococcus oeni* strains with unique performance and winemaking properties. VP41™ stood out as a highly tolerant strain, which can perform under the most difficult winemaking conditions such as very alcohol as well as low pH. It is one of the ML strains very tolerant to SO₂. Beside its good resistance, VP41™ is recognized for its sensory contribution to red berry fruit aroma, its late and slow degradation of citric acid and very low production of diacetyl.

PROCESS



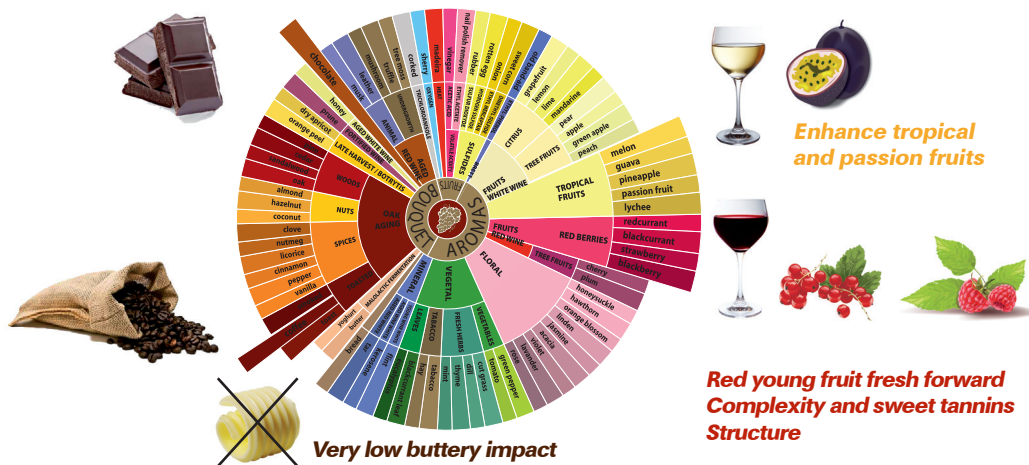
The 1-STEP™ starter Kit is a highly efficient Starter culture to promote Malolactic Fermentation (MLF) of most red and white wines, in a wide range of oenological conditions. The 1-STEP™ starter Kit consists of a malolactic active freeze-dried *Oenococcus oeni* strain and specific activator. The excellent activity and high vitality of the 1-STEP™ starter culture is achieved during a short acclimatization step that activates their metabolism to induce a fast onset of malolactic fermentation. **After 1-STEP™ acclimatization, VP41™ had proved it's capacity to induce MLF in very limiting wine conditions where other starter culture may fail.**

OENOLOGICAL AND MICROBIOLOGICAL PROPERTIES

- pH tolerance : > 3.1
- Alcohol tolerance : up to 16 % vol.
- SO₂ tolerance : up to 60 mg/L total SO₂ (pay attention to molecular SO₂ at low pH)
- T° tolerance : > 16°C
- Low nutrition 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

ORGANOLEPTICAL PROPERTIES

Beyond bio-deacidification, VP41™ is a true winemaking agent, which contributes to the sensory complexity and the quality of wine as follows :



This sensory contribution can be further supported by the combination with an appropriate selected yeast strain and timing of ML bacteria inoculation.



LALLEMAND OENOLOGY

INSTRUCTIONS FOR USE

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.

1-Step® Kit	1A Volume of drinking water (L)	2 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 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. Check malolactic fermentation activity (malic acid degradation) every 2 to 4 days. Under more difficult conditions, add a specific bacteria nutrient

Recommended temperature range :

- White wine / rosé wine: from 16 to 20° C.
- Red wine: from 17 to 25° C.

If limiting conditions (high alcohol > 14.5 vol, or low pH < 3.1, or high SO₂ > 45 ppm) : from 18 to 22°C.

CO-INOCULATION (SIMULTANEOUS ALCOHOLIC FERMENTATION)

The 1-STEP™ activator and lactic acid bacteria can be used in co-inoculation without doing an acclimatization step when the conditions and must are suitable (pH >3.4 and sulphite addition to the grapes <8 g/hL).

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. Wait for 2 hours maximum.

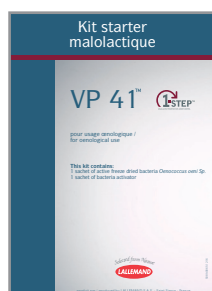
2. Transfer the rehydrated mix (activator and lactic acid bacteria) into the fermenting must / wine 24 hours after the yeast is added.

3. Check malolactic fermentation activity (malic acid degradation) every 2 to 4 days, as well as volatile acidity.

In the case of must with pH <3.4 or sulphite addition >8 g/hL, it is recommended to use the 1-STEP™ activator and lactic acid bacteria after alcoholic fermentation.

Recommended temperature range :

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



PACKAGING AND STORAGE

- Product in powder form. The bacteria is obtained by lyophilisation.
- Available in sachet for inoculation of 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.

The information herein is true and accurate to the best of our knowledge however this data sheet is not to be considered as a guarantee expressed or implied or as a condition of sale of this product.

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DISTRIBUTOR