

# MANNOSTAB® LIQUIDE 200

Specific yeast cell wall mannoprotein for the stabilisation of potassium bitartrate salts in wine.

*Qualified for the elaboration of products for direct human consumption in the field of the regulated use in oenology.  
In accordance with the current EU regulation n° 2019/934.*

## SPECIFICATIONS AND OENOLOGICAL APPLICATIONS

**MANNOSTAB® LIQUIDE 200** contains the only mannoprotein naturally present in wine with the ability to **stabilise potassium bitartrate salts**: MP40. It is enzymatically extracted from yeast cell walls by a patented process (Patent n° 2726284) that preserves and ensures the tartaric stabilisation capacity of MP40.

- Inhibition of potassium bitartrate crystallisation.
- Treatment organoleptically neutral to the wine.
- Naturally present in wine.
- Stabilises white, rosé and red wines; still or sparkling wines; filtered or unfiltered.
- No waste, no water or energy consumption.

## SCIENTIFIC RESULTS

Microscopic observation of potassium bitartrate crystal development in the presence and absence of **MANNOSTAB® LIQUIDE 200** shows that **MANNOSTAB® LIQUIDE 200** addition prevents the preferential growth of certain crystal faces, thereby flattening the shape of the crystals. The crystal only grows in a certain orientation, thus preventing it from precipitating.

Sampling date	27/06	30/06	02/07	04/07	07/07
Control					
<b>MANNOSTAB® LIQUIDE 200</b>					

*Microscopic observation of potassium bitartrate crystals evolution at -4°C (25°F) in solutions with and without **MANNOSTAB® LIQUIDE 200**.*

## PHYSICAL CHARACTERISTICS

Aspect .....	liquid	Density (g/L) .....	1080
Colour .....	dark brown	Soluble in water (dark brown colour), insoluble in ethanol.	

## CHEMICAL AND MICROBIOLOGICAL ANALYSES

SO <sub>2</sub> (g/L) .....	1.5 ± 0.3	Coliformes (CFU/g) .....	< 10
Dry residues (%) .....	≥ 20	<i>E. coli</i> (/25 g) .....	none
<u>Analysis on dry product:</u>		<i>Staphylococcus</i> (/g) .....	none
Ashes (%) .....	< 8	<i>Salmonella</i> (/25 g) .....	none
Total nitrogen (g/kg) .....	[5 - 75]	Heavy metals (Pb) (ppm) .....	< 30
Polysaccharides eq. mannose (g/kg) .....	> 600	Lead (ppm) .....	< 5
Yeast (CFU/g) .....	< 10 <sup>2</sup>	Arsenic (ppm) .....	< 1
Mould (CFU/g) .....	< 50	Mercury (ppm) .....	< 0.15
Aerobic mesophile bacteria (CFU/g) .....	< 10 <sup>4</sup>	Cadmium (ppm) .....	< 0.5
Lactic acid bacteria (CFU/g) .....	< 10 <sup>4</sup>		



**LAFFORT**

*l'œnologie par nature*

## PROTOCOL FOR USE

### OENOLOGICAL CONDITIONS

**MANNOSTAB® LIQUIDE 200** is the last treatment before bottling (after blending, fining and pre-filtration, etc.). No treatment should be made post **MANNOSTAB® LIQUIDE 200** application with the exception of SO<sub>2</sub>, Gum Arabic and ascorbic acid.

In the case of filtered wines, **MANNOSTAB® LIQUIDE 200** should be added between preparation filtration and bottling filtration and at least 48 hours prior to bottling. Filterability of the wine should be tested before and after addition of **MANNOSTAB® LIQUIDE 200**. Where **MANNOSTAB® LIQUIDE 200** addition does not increase the Filterability Index (Clogging Index) of wines prepared to the above specifications (CI < 50), a forced blocking filtration may retain colloids and/or **MANNOSTAB® LIQUIDE 200** and may make the treatment ineffective.

In the case of non-filtered wines the treatment must be added the day before bottling.

Red wine specific case: unstable colouring matter can result in tartrate salts by precipitating over time. Make certain the colouring matter of the wine is stable before treating with **MANNOSTAB® LIQUIDE 200** for long term tartaric stability.

**MANNOSTAB® LIQUIDE 200** will not prevent the neutral calcium tartaric salts precipitation.

### IMPLEMENTATION

- Homogenise the **MANNOSTAB® LIQUIDE 200** solution.
- For still wines, incorporation should be completed before the last filtration with a dosing pump or an **OENODOSEUR** on wines already fined and clarified. Make sure the homogenization is perfect.
- We recommend incorporating **MANNOSTAB® LIQUIDE 200** at least 48 hours before filtration.
- For sparkling wines, incorporation of **MANNOSTAB® LIQUIDE 200** should be done either during tirage (less stacking risks) or during disgorging (in this case anticipate the filtration of the **MANNOSTAB® LIQUIDE 200** solution) in the expedition liqueur.

### STORAGE RECOMMENDATION

- Store above ground level in a dry area not liable to impart odours. Ensuring stock is kept at a moderate temperature (in frost-free conditions), in its original, unopened packaging.
- Optimal date of use: 2 years.
- Do not use opened packaging.

### DOSAGE

The average dosages (between 50 and 150 mL/hL) are determined by stability tests in order to prevent any risks of overdose. Two stability tests can be implemented:

- **The cold test**, easy to implement in wineries.
- **The mini-contact test**, realised in laboratory (DIT, Stabilab® – Patent Eurodia)

Tartaric instability degree (%)	<b>MANNOSTAB® LIQUIDE 200</b> Dosage (mL/hL)
< 4.8	stable
4.8 to 8	50
8.1 to 11	75
11.1 to 14	100
14.1 to 17	100 - 120
17 to 20	150
20.1	Not stabilisable with only <b>MANNOSTAB® LIQUIDE 200</b>

### PACKAGING

1 L and 10 L can.

**IMPORTANT: To the extent that the conditions of use are beyond its control, LAFFORT® cannot be held responsible for failure to successful treatment and the appearance of salt crystals of tartaric acid.**

