MannOstab®

NATURAL STABILITY OF WINES

This stabilisation procedure, for wines aged more than 6 months, consists of adding a quantity of **MANNOSTAB®/MANNOSTAB®** Liquide which will inhibit the precipitation of potassium bitartrate. This quantity must be determined for each wine according to its natural native content of protective colloids and to defined stability criteria. As neutral calcium tartrate precipitations are difficult to anticipate, the **MANNOSTAB®** treatment does not guarantee inhibition with regards to calcium salts.

In all cases, MANNOSTAB® treatment must be carried out with advice from an œnologist.

1- DOSAGE

Average doses are between 100 and 300 ppm (50 - 150 mL/hL of **MANNOSTAB® LIQUIDE**). They can be directly recommended by an oenologist according to wine ageing conditions (duration, temperature) or calculated exactly using stability tests (contact your laboratory or your Laffort representative). These tests must imperatively be carried out after racking or pre-filtration. Any operation which modifies the wine's colloidal constitution modifies its tartaric stability and therefore negates any prior stabilisation treatment.

Example of determining dosage by the cold test:
MANNOSTAB®:

1. Dissolve 1.5 g of **MANNOSTAB®** in 40 mL of distilled water.
2. Add increasing volumes of this **MANNOSTAB®** stock solution to 375 mL bottles at the following levels: 0, 1.0, 1.5, 2.0, 2.5, and 3,0 mL. These volumes correspond to final **MANNOSTAB®** concentrations of 0, 100, 150, 200, 250 and 300 mg/L.
3. Make each bottle up to 375 mL with the wine to be stabilised.
4. Filter each sample under conditions as close as possible to those to be used for bottling (i.e. same filter porosity). In the case of wine which will be unfiltered at bottling, the sample must be in the same state of clarification as it will be at bottling.
5. Store each sample at -4°C/24.8°F for 6 days.
6. After 6 days' storage at -4°C/24.8°F, if crystallisation has occurred in the control sample then make a note of the first sample in which there are no crystals. This sample will determine the stabilisation dose. If the control does not precipitate, the wine is considered stable.

- Results are easy to read in the case of white, rosé or dessert wines, by turning over the sample bottle and observing the presence of crystals.
- For red wines, it may be necessary to filter the samples after cold storage, the presence or absence of crystals on the membranes being used to determine the required stabilisation dose (use prefilters with 2.5 to 3 micron nominal pore size, the objective being simply to retain any crystals that may have formed).

MANNOSTAB® LIQUIDE:
the procedure is similar, except that the **MANNOSTAB® LIQUIDE** is added directly to the samples without the need to prepare a solution in step 1.

Equivalent treatment dose in volume of **MANNOSTAB® LIQUIDE** for a wine sample volume of 375 mL (use a micropipette).

Treatment dose (mL/hL)	50	75	100	125	150
Volume of **MANNOSTAB® LIQUIDE** to add to 375 mL of wine	187 µL	281 µL	375 µL	469 µL	562 µL

TREATMENT DOSAGE = STABILISATION DOSAGE + 5 g/hL (50 ppm).
Examples of Treatment Dosage determination with **MANNOSTAB®:**

Wines	MANNOSTAB® doses tested (ppm)						Stabilisation dose	Recommended treatment dose
	0	100	150	200	250	300		
White/Rosé	****	***	**	0	0	0	200	250
Red	***	**	0	0	0	0	150	200
Sweet white	****	***	**	*	0	0	250	300

****: presence of crystals / 0: absence of crystals

2- IMPLEMENTATION

The addition of **MANNOSTAB®/MANNOSTAB® LIQUIDE** is carried out between preparation filtration and bottling filtration, at the latest the day before bottling.
After determination of the treatment dosage and **MANNOSTAB®/MANNOSTAB® LIQUIDE** addition, only SO_2, ascorbic acid or **STABIVIN®** (gum arabic) can be added to the wine.

Preparative method (if using MANNOSTAB®)

1. Dissolve **MANNOSTAB®** in 10 times its weight in water heated to 30°C/86°F.
2. Leave the preparation to stand for a few minutes until it is completely dissolved.
3. Incorporate this solution into the wine to be treated using a dosing pump or a Venturi system.
4. Fully homogenise the **MANNOSTAB®** in the tank (at least 1.5 volumes of the tank).

NON-FILTERED WINES:

MANNOSTAB®/MANNOSTAB® LIQUIDE must be added to the wine at the latest the day before bottling, following the preparative methods described above.

FILTERED WINES:

Good wine filterability is essential for a successful **MANNOSTAB®/MANNOSTAB® LIQUIDE** treatment procedure. Any blocking of the filtration media brings about modifications to the wine's colloidal structure and/or retention of **MANNOSTAB®/MANNOSTAB® LIQUIDE** and thus an immediate decrease in the treatment's efficiency.

1. The turbidity (NTU) and clogging index (CI) measures are essential for defining adequate filtration conditions.
2. Temperature of the wine during treatment and during bottling filtration must be above 15°C/59°F. Avoid all thermal shocks (temperature variations > 5°C/9°F) after bottling and for 72 hours post-bottling.
3. Filtration recommendations according to filterability indexes:

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Before **MANNOSTAB®/ MANNOSTAB® LIQUID ADDITION**	After **MANNOSTAB®/ MANNOSTAB® LIQUID** addition	Choice of bottling filtration (**LAFFORT®** Series L filter sheets)	Relative retention threshold (Filter grade: pore size (µm))
Turbidity < 3NTU and IC < 50	IC < 20 and turbidity < 3 NTU	Filtration on plates L12, L15, L40, L60 Filtration on membranes	L12: 1 L 15: 0.6 L 40: 0.45 L 60: 0.35
	IC > 20 and turbidity < 3 NTU	Filtration on plates L7	L7: 1.5
Turbidity < 5 NTU and IC > 50	Turbidity < 5 NTU	Filtration on plates L5	L5: 2
Turbidity > 5 NTU	Addition not possible without prefiltration using earth or L3		L3: 2-3

4. It is highly recommended to not exceed a pressure difference of 0.8 Bar (between the inlet and outlet of the filter) in order to avoid colloid and/or **MANNOSTAB®/MANNOSTAB® LIQUIDE** retention by blockage and thus treatment inefficiency.

STORAGE

Must be stored in original unopened packaging in dry, chilled conditions (4°C/39°F - 20°C/68°F). Use within the specified use-by date. After opening, the products must be used within 24-48 hours if kept cool.