

Checklist for Potassium Tartrate Stabilization with **CELSTAB®**

CELSTAB®
STABILITY OF WINES

LAFFORT® offers a revolutionary solution for stabilizing potassium tartrate (KHT) in white and rosé wines. Please follow the checklist below to ensure that your wine is properly prepared for trial and production use of **CELSTAB®**. Please keep in mind that **CELSTAB®** should be the last treatment to your wine before membrane filtration and bottling, excluding **STABIVIN®**, SO_2 , CO_2 and ascorbate.

RED WINES > **CELSTAB® is not recommended, consider MANNOSTAB® for tartrate stabilization of red wines .**

WHITE WINES > **CELSTAB® is recommended as a cost effective and efficient potassium tartrate stabilization treatment.**

PRE-FERMENTATION

- Calcium concentration should be below 60 mg/L. Test juice to allow correction with **CA²⁺STAB®** as early as possible, during fermentation if necessary. Calcium carbonate de-acidification can elevate calcium levels above 60 mg/L, as can the use of untreated concrete tanks and vines grown on high calcium soils. Elevated calcium levels can cause calcium tartrate precipitation, and **CELSTAB®** is efficient in preventing only potassium tartrate precipitation.

POST-FERMENTATION

- Wine must be protein (heat) stable as measured on filtered wine held at 80°C for 30 minutes with a final NTU of less than 2.0.
- In the case of a late addition of finishing tannins, specifically those added after the addition of bentonite for protein stability, it is recommended to perform a protein stability test again.
- CELSTAB®** may form a haze in wines treated with Lysozyme. If wines are treated with Lysozyme after heat stability is verified, perform an additional heat stability test.
- Prepare all sample wines for lab trials in the same manner as the bottling protocol.
- The initial tartrate instability must be measured by the **STABILAB®** Degree of Tartrate Instability (DIT) Test and must be < 25%.
- For 'Unfiltered' wines, the clarity of the wine must be < 3.0 NTU prior to **CELSTAB®** addition.
- For wines that will be passed through a membrane filter at the bottling, prior pad or cross-flow filtration is highly recommended.
- Add **CELSTAB®** at 1 mL per liter of wine.
- Add **CELSTAB®** after pad or cross-flow filtration and at least 24 hours before membrane filtration and bottling.
- Dilute **CELSTAB®** in 2 times the dosage volume with wine and mix into wine thoroughly.
- At membrane filtration and bottling the wine temperature should be >15°C and the membrane differential pressure should not exceed 0.8 bar.

ROSÉ WINES > **CELSTAB® is recommended as a cost effective and efficient potassium tartrate stabilisation treatment.**

- Adhere to the checklist of all items above.
 - Confirm color stability for treatment.
 - Prepare 100mL of 0.65 µm filtered wine with 100 µL **CELSTAB®**, measure.
 - Record turbidity NTU_i.
 - Place in refrigerator at 4°C for 48 hours, then remove and allow 30 minutes at room temperature.
 - Record turbidity NTU_f
 - If (NTU_f – NTU_i) < 5, the wine color is stable
 - If (NTU_f – NTU_i) < 20, the wine color is moderately unstable
 - If (NTU_f – NTU_i) > 20, the wine color is unstable
- In case of an unstable wine, treat with fining agent (Gecoll Supra, Oenocell) or **STABIVIN®** until the test is positive.

Validation of **CELSTAB®** Performance

- To verify the efficacy of **CELSTAB®** treatment use the Critical Index of Tartrate Stability test (ISTC-50 by **STABILAB®**) or the **Checkstab** Mini Contact Test .



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Preparing wines for using CELSTAB®

CELSTAB® does not inhibit calcium tartrate crystallization

You need to be aware of the calcium level in your wine. If the calcium is above 60ppm, your wine is at risk of developing calcium tartrate crystals.

Wine must be heat (protein) stable before CELSTAB® addition. Heat Stable = < 2 NTU change after wine is heated for 30 min at 80°C

CELSTAB® can interact with unstable proteins in the wine, forming a haze. It is important to check your heat stability after your bentonite treatment to make sure the wine is heat stable. If your wine cannot achieve heat stability, MANNOSTAB® might be a better option for your cold stability treatment.

The initial degree of instability (%DIT) needs to be less than 25%

If the DIT% IS >25% the wine is too unstable for CELSTAB® to be effective. You can use the traditional cold treatment for a short time and then retest to see if it has come into range for CELSTAB® treatment.



CELSTAB® is the last thing you add post-filtration

The wine must be less than 3 NTU at the time of addition. If pre-filtration is part of the preparation before bottling, CELSTAB® is added after the cellar filtration. CELSTAB® can interact with the components of the colloidal matrix, so you can only add it to a wine that is bottle ready. If CELSTAB® is added to a high NTU wine, it may interact with those solids in suspension and cause haze, precipitates or filtration issues.

CELSTAB® addition is one standard addition rate:

1 mL CELSTAB® per liter of wine

Dilute CELSTAB® in 2 x the dosage volume with wine and meter into the tank – mix the tank to turn wine volume over two times in order to thoroughly mix the tank. CELSTAB® is a 10% solution so you are actually adding 100ppm of pure CMC to the wine – well below the current TTB limit.

ISTC 50 Test to confirm cold stability

To confirm that CELSTAB® does cold stabilize the wine, do a bench trial with a filtered wine sample. Add 1 mL/L (0.75 mL or 750 ul) of CELSTAB® to 750 mL wine sample and send in for the ISTC 50 test. This is a modified conductivity test, taking into account that all the tartrate ions are still in solution with CELSTAB® treatment. You should see less than a 4 µS (micro siemens) change from minute 40 to minute 120 in a passing ISTC 50 test.

Wait at least 48 hours between CELSTAB® addition and filtering through a 0.45 micron membrane

CELSTAB® needs time to react and equilibrate with colloidal matrix components of the wine.

Filterability decreases initially – but recovers within the 48 hour window. If you add CELSTAB® the morning of bottling you will have difficulty getting through the (0.45µm) sterile membrane on the bottling line.

Temperature of the wine at bottling should be >60°F

Rosé wines need to be color stable before CELSTAB® addition

CELSTAB® can react with free anthocyanins in addition to the tartrates in the wine therefore, the wine will not be adequately protected and can develop precipitates if the wine is not color stable at the time of addition. See the test for color stabilization at the bottom of the CELSTAB® checklist.