

## Detailed protocol for using Claristar™ for tartrate stabilization (potassium bitartrate) in white and rosé wines

### Preparing the wine

Protein stabilization operations, fining, racking, and blending as well as clarifying by alluvium, press or rotating filters using filter aids (diatomaceous / kieselguhr, perlite or cellulose fibers), must be completed before adding Claristar.

### Determining the dose of Claristar

Any of four tests may be used to measure wine instability before adding Claristar: DIT, mini-contact, test at -4°C, and T<sub>sat</sub> saturation temperature.

#### Which tartrate instability measurement test is available to you?

#### Test at -4°C

Purpose	Method	
<b>Day 0</b> – select the wines to be stabilized	Prepare wine samples <sup>(1)</sup> with doses 100, 125, and 150 ml/hl of Claristar and a control without Claristar	Cool the 4 samples to -4°C
<b>Day 2</b> – check that the wine can be stabilized with 100ml/hl of Claristar	<b>Check the Control</b> Check whether there are crystals in the control sample with no Claristar	<ul style="list-style-type: none"> <li>○ <u>No crystals in the control sample:</u> The wine can be stabilized using Claristar at 100ml/hl.<sup>(2)</sup></li> <li>○ <u>Crystals present in the control sample:</u> the wine is very unstable. The dose (&gt; 100ml/hl) will be assessed by the result at Day 6.</li> </ul>
<b>Day 6</b> – determine the dose for the most unstable wines	<b>Check of Claristar samples</b> Check whether there are crystals in the samples with Claristar at 125 and 150 ml/hl and determine the effective dose Claristar, i.e. the dose at which the sample has no crystals. <sup>(3)</sup>	

<sup>(1)</sup> Wine samples

Minimum wine volume: 100ml

Wine volume: 75cl

add 100µl of Claristar for a 100ml/hl dose

add 750µl of Claristar for a 100ml/hl dose

<sup>(2)</sup> *Note: A check of the wine sample after 6 days at -4°C will confirm the dose of 100ml/hl.*

**Tsat or DIT and Mini-contact Tests**

<b>Tests before adding Claristar – Day 0</b>	<b>Threshold values</b>	
Mini-Contact	≤ 135 ΔS	≥ 136 ΔS
Saturation temperature	≤ 21.5 °C	≥ 21.6 °C
Degree of tartrate instability	≤ 20%	> 20 %
	Instability defined as low to average	Instability defined as very high
	Stabilization possible with Claristar. Recommended dose: 100ml/hl	Only the test at -4°C on wine samples containing Claristar enables the optimum dose > 100ml/hl for stabilizing the wine to be determined. <sup>(3)</sup>

**Addition of Claristar**

In order to eliminate crystal particles and nuclei, the wine must be filtered through a 1.2 µm minimum porosity filter. Complete homogenization of Claristar wine must be carried out.

**Addition before final filtration.**

Claristar may be added prior to filtering using a plate or lenticular filter that is less than 100% cellulose, or a tangential or membrane filter.

**Addition after filtration.**

Claristar must be added after filtration when using alluvium, press or rotating filters with filter aids (diatomaceous / kieselguhr, perlite or cellulose fibers).

**Special recommendations**

Consult the list of wine-making practices and treatments that are compatible with Claristar.

Note: Claristar must not be added to a wine treated with calcium carbonate, CaCO<sub>3</sub>. A period of 14 days must elapse after disacidification with potassium carbonate KHCO<sub>3</sub> or acidification, before adding Claristar.

**Application trials – contact DSM for assistance**

Applying Claristar in some types of wine-making procedures requires validation in partnership with DSM: sparkling wines, fortified wines (with alcohol < 16%vol.) and other special wine-making procedures.

**Checking Wine Stability**

Only the -4°C test enable tartrate stability established with Claristar to be measured. The results from any other stability measurement test do not correlate with Claristar data.

<sup>(3)</sup> If crystals appear after 6 days even with 150 ml/hl of Claristar, the wine tested is extremely unstable. With our current level of experience, we do not recommend the systematic use of Claristar in such very unstable wines.