

## Product Description

A specific calcium precipitant.

Permitted according to the laws and regulations currently in force. Purity and quality are proved by specialized laboratories.

## Aim of Treatment

Early precipitation of excess calcium in the wine to prevent calcium crystal precipitations in the bottle.

## Product and Effect

A frequent reason for crystal turbidity in bottled wines are sediments of calcium tartrate, the calcium salt of L(+)-tartaric acid present in the wine. Cristal-ex reacts with the calcium dissolved in the wine and precipitates in the form of calcium DL-tartrate, the calcium salt of DL-tartaric acid. The solubility of calcium DL-tartrate or calcium racemate, the calcium salt of the above mentioned DL-tartaric acid (racemic acid), is only approximately 1/10 of the solubility of calcium L(+)-tartrate, therefore it precipitates easier, quicker and more complete. This precipitation of calcium racemate leads to a reduction of the calcium content of the wine to an extent that a subsequent crystallisation of calcium L(+)-tartrate is prevented.

## Dosage and Application

Normally, most of the wines have a calcium content around 80 mg/L. Dependent on soil condition, after extreme deacidification or when wines have a relatively high pH-value, the calcium content could exceed by far a value of 100 mg/L. To avoid crystal precipitations later on, the calcium content must not exceed 80-90 mg/L and should be lowered to this amount. When wines show extremely high calcium contents above 180 mg/L, a reduction to 100-120 mg/L Ca is sufficient. The reduction of the calcium content requires first the exact analysis of a special laboratory. If a Cristal-ex treatment is necessary and is to be carried out, the following points must be observed:

- a) The dosage depends on the amount of calcium to eliminate and must be carried through carefully. The calcium DL-tartrate crystallisation takes place in a stoichiometric ratio, i.e. 150 mg/L Cristal-ex are necessary to precipitate 40 mg/L calcium. The following simplified table could be used:

amount of calcium to eliminate	required dosage of Cristal-ex
25 mg/L	10 g/100 L
50 mg/L	20 g/100 L
75 mg/L	30 g/100 L
100 mg/L	40 g/100 L

For Cristal-ex treatment, the wine must be fined and prefiltered to exclude all factors which could inhibit crystallisation.

- b) The calcium DL-tartrate crystallisation depends on the content of natural L(+)-tartaric acid. The lower the natural tartaric acid content, the slower the crystallisation. If the tartaric acid content is below 1.5 g/L, the wine should not be treated with Cristal-ex.
- c) For application, Cristal-ex is mixed with a small quantity of wine and added to the vessel with the total quantity of beverage under intensive stirring. Crystallisation sets in within a few hours or days and is normally terminated after approximately 14 days. Principally, the treatment should be performed at an early stage, after the 2. racking, as then the crystallisation period is longer.
- d) It has to be considered that in case of blendings, the calcium content could increase again and the treatment might not be successful.
- e) Overdosages of Cristal-ex must be avoided by careful and precisely performed sampling, exact measurements and a careful way of operating. Excess DL-tartaric acid might again lead to crystallization in case of later take-ups of calcium.

## Storage

Store in a dry place.

**DL-tartaric acid to prevent calcium crystal precipitations in the wine**