



# ENDOZYM<sup>®</sup> Ice

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 Liquid enzymatic preparation, specifically formulated for maximising  
 the extraction of varietal aromas  
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## → TECHNICAL DESCRIPTION

**Endozym Ice** is a liquid enzymatic preparation, specifically formulated for maximising the extraction of varietal aromas and assist in the clarification of musts obtained by skin-contact.

This technology is based on the rapid cooling of the grapes in order to prevent an early start of fermentation and allow the time necessary for the extraction of a higher amount of aromatic precursors.

However, this phase also increases the passage of solid substances from the berry into the must; this decreases the clarification yield and does not allow to obtain the desired degree of clarity. Often the good endowment of aromatic precursors that these musts possess is compromised by the development of off odours during fermentation. Thanks to the correct ratio between its pectinlyasic and hemicellulasic activities, **Endozym Ice** constitutes the ideal enzymatic preparation for achieving a good settling, even at temperatures below 12°C.

The resulting musts have no tendency to generate any off odours and are richer in aromatic precursors, which are also released by the enzymatic action on the grape skins.

## → COMPOSITION AND TECHNICAL CHARACTERISTICS

Enzymatic activity	Activity/g
PL (U/g)	9,000
PE (U/g)	880
PG (U/g)	4,500
CMC (U/g)	80
Total UP (U/g)	14,380

*The value is approximate and is not a specification.*

**PL** (Pectinlyase): breaks down both the esterified and non-esterified pectins. This is a fundamental activity of the AEB enzymes, since it produces a very rapid clarification speed.

**PE** (Pectinesterase): it supports the PG in breaking down pectin.

**PG** (Polygalacturonase): breaks down only the non-esterified pectins. Its enzymatic activity works in synergy with the PL activity and performs a very important role in determining must clarity and wine filterability.

**CMC** (Cellulase): represents several enzymatic activities which in synergy with pectinase, release colouring matter, tannins and aromatic precursors from the grape skin.

The total measure of enzyme activity, which is indicated for each preparation, can be expressed as:

**Total UP** (U/g), which is the measure of enzyme activity resulting from the sum of PL, PG, PE activities measured individually.





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**Endozym Ice** is purified by the following activities:

**CE** (Cinnamyl Esterase): is an activity found in unpurified enzymes, which causes the formation of volatile phenols, compounds which lend unpleasant aromatic nuances to the wine, which, if present in high concentrations, are reminiscent of horse sweat.

**Anthocyanase**: is a secondary enzymatic activity which causes a partial breakdown of the anthocyanins with a consequent increase of orange hues in the wines. AEB enzymes are obtained from *Aspergillus niger* strains, which do not produce anthocyanase.

## → DOSAGE

From 2 to 5 g/hL or 100 kg of product to be treated.

The minimum recommended dosage varies according to the must or crushed grapes temperature. By using higher dosages, the unfavourable influence of low temperatures can be rectified.

## → INSTRUCTIONS FOR USE

**Endozym Ice** is a liquid product and can be dosed automatically. Add directly into the grapes, crushed grapes or must. Use at the start or during the refilling of the tanks.

## → ADDITIONAL INFORMATION

### INFLUENCE OF SO<sub>2</sub>

Enzymes are resistant to SO<sub>2</sub> levels normally used in winemaking, however it is good practice not to put them in direct contact with sulfur solutions.

### ACTIVITY CONTROL

There are various methods for evaluating enzymatic activity. A system utilized by AEB is a method of direct measure, directly linked to the concentration of the PL, PG and PE; the total of the three activities yields the Total UP per gram unity. The determination methods of pectolitic units together with the relative activity diagrams are made available to all technical personnel by AEB.

## → STORAGE AND PACKAGING

Keep **Endozym Ice** in the original sealed packaging away from light, and in a cool, dry, odour-free place at a temperature below 20°C. Do not freeze. Observe the expiry date on the packaging. Use promptly after opening.

1 kg net bottles in cartons containing 4 kg.

