



# ENDOZYM<sup>®</sup> ICS 10 Rouge

Enzyme for the extraction of color, phenolics and aromatics



## → TECHNICAL DESCRIPTION

**Endozym ICS 10 Rouge** contains Cellulasic & Emicellulasic enzymatic activities that promote color and body extraction by acting on the walls of the vegetable cells. They act at the level of hemicellulose and cellulose of the skin, extracting color, tannins, polysaccharides and aromatic precursors. The extraction from the seeds is left for extended maceration and not affected by this enzyme. Long skin contact time is the way to extract from seeds, but this can present a number of issues like oxidation, V.A. and bitterness.

Using **Endozym ICS 10 Rouge** is an alternative way to improve extraction with shorter maceration. The ICS 10 line contains the undiluted and purified enzymatic activities developed on a solid phase media in our French facility, and controlled by the Microbiology Institute of Reims University, Champagne-Ardenne (FR). The ICS 10 line has been designed to guarantee a liquid product that can be diluted and used with optimized efficiency and cost. The high concentration ensures longer shelf-life, prevents hostile media and spoiling agents, and reduces shipping and storage costs.

## → COMPOSITION AND TECHNICAL CHARACTERISTICS

Enzymatic activity	Activity/g
PL (U/g)	29,000
PE (U/g)	2,040
PG (U/g)	5,433
CMC (U/g)	450
Total UP (U/g)	36,473

*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 ICS 10 Rouge** 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

Standard addition is from 1 to 3 mL per ton of grapes.

Higher doses must be used for grapes with low pH, problematic settling vintages or cultivars.

## → INSTRUCTIONS FOR USE

It is recommended the addition of the macerating enzymes only in optimal conditions. This would be during a pump over, right when fermentation starts. The product should be diluted in 20-30 parts of sulfur-free must or in demineralized water.

## → 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 ICS 10 Rouge** 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.

250 mL net flasks

1 kg net flasks.

