

Trenolin[®] T-Stab DF

- The modern way of warming of the mash
- Structure-promoting release of catechins and oenotannins
- Active up to 75 °C
- Thermostable enzyme complex

Thermovinification

Thermovinification in red winemaking meanwhile has prevailed for the simple reason of having a lot of advantages. Production plants have their own technology, methods and technical equipment, or mobile plants are employed so that heating technology is efficiently used almost area-wide. The main advantages of a heating to 85 °C and more, are the independence of weather influences, clean, clear, very fruity wines and a high density of colour.

But often there is complaint of a certain jam-like nature and a lacking tannin structure, similar to red wines having undergone fermentation on skins. To combine the advantages of both methods – mash heating and mash fermentation on skins – more and more frequently the so-called warming of the mash is applied. In this process, the mash is heated to not more than 65-75 °C to avoid the undesirable cooked taste. To obtain sufficient extraction of, among others, catechins necessary for the tannin structure, so far mostly a prolonged contact time of about 12 hours was required.

A reduction of this contact time by means of enzymes could so far not be realized, since enzymes are very sensitive to temperatures as of 55 °C. But now, Erbslöh Geisenheim has developed the new thermostable enzyme product Trenolin[®] T-Stab DF. Trenolin[®] T-Stab DF is an innovative, pectinolytic enzyme complex which contains besides a truly thermostable pectinase the other valuable thermostable enzyme activities, acidic proteinases and hemicellulases (fig. 1).

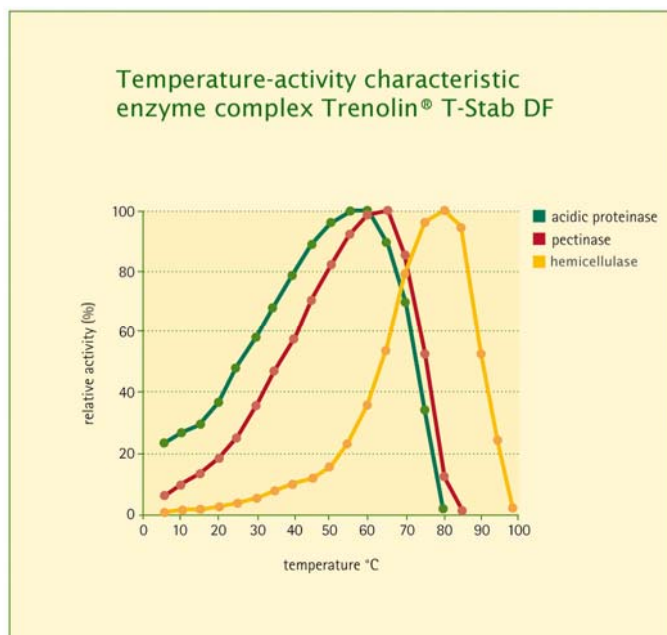


fig. 1

These effect intensive mash digestion without attacking the structure of the mash and macerating it in a negative way.

The temperature characteristic of the pectinase activity of Trenolin[®] T-Stab DF in comparison with a standard wine pectinase (fig. 2) clearly shows the newly developed enzyme's efficiency.

The temperature optimum of Trenolin[®] T-Stab DF is at 65 °C and even at temperatures of up to 75 °C it is still active and stable.

Especially in the pH-range of red wines, the enzyme shows highest activity and stability also at the target temperature of 65-75 °C.

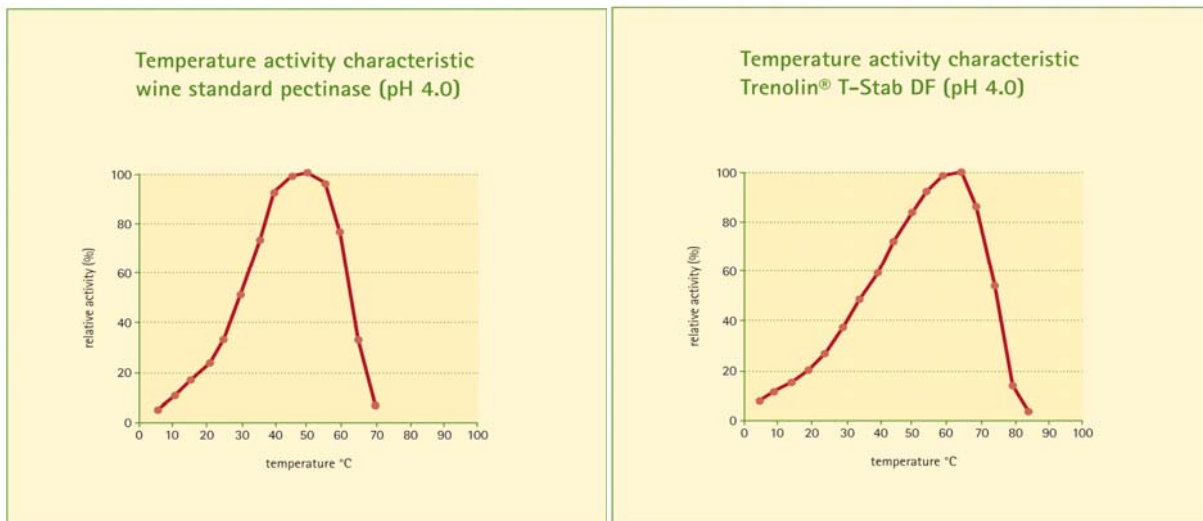


fig. 2

Warming of the mash

While in the course of mash heating and mash warming, the high temperatures cause the anthocyanins to pass from the fruit cells into the grape must in a very short time, the dissolving-out of the catechins needed for anthocyanin stabilisation, usually requires a longer time of heat contact. The same applies to the structure-giving oenotannins. The application of Trenolin® T-Stab DF has a strongly accelerating effect, particularly for the extraction of tannins and catechins as ingredients relevant for structure and colour. Thus practically hardly any additional contact time is required for this. In principle the processing time of the grapes suffices as a long enough reaction time of Trenolin® T-Stab DF, provided enzyme addition is made directly in the mill or to the press. Between milling, probable gathering of the mash in buffer tanks, loosening of the press cake and pressing itself until discharge, at least 2 to 3 hours pass, often up to 6 hours. This time is completely sufficient to provide the basis for a successful vinification.

Application

Trenolin® T-Stab DF is added as diluted enzyme solution, best directly continuously into the grape mill. The enzyme already starts to react during mash warming in the spiral or tubular heater. Pectin degradation runs parallelly to the filling of the mash buffer tanks or press and is generally completed shortly after filling has been finished. At the same time, during the entire duration of warming, an intensive maceration occurs and the valuable structure-giving and pigment-stabilizing ingredients are liberated. The more time is given for this, the better. Usually however, the mere processing time until completed filling of the press is sufficient, to then start directly the pressing of the mash. The loosening of the press cake during pressing then promotes a further extraction effect. A cooling of the mash is not necessary, pressing can be performed without problems at a residual heat of 65-70 °C. After that the must is cooled to fermentation temperature and pre-clarified.

Advantages

The warming of the mash with Trenolin® T-Stab DF has the following advantages:

– Reduction of contact time, quicker, almost continuous course of operation, a larger amount of processable mash per time unit	– Improved pressability, improved passage of the mash through the heater
– Saving of energy	– Improved self-clarification of grape musts and young wines
– Reduced microbiological risk by reduced contact time	– Later on improved filtration
– Minimization of browning reactions through inactivation of laccase and polyphenol oxidase	– Increase of fruit intensity
– Improved pumpability	– Wine ageing in a shorter time

Experts and consumers alike, describe wines produced by the method of mash warming with the thermostable enzyme Trenolin® T-Stab DF as velvety-warm, very rich in extract, full-bodied and complex, long-lasting, with high density of tannins and colour pigments.