

Thermotolerant fungal- $\beta$ -glucanase for glucan degradation in brewing mashes and finished beer without influence on foam stability

### Product Description

Beerzym BG SUPER is a special liquid enzyme for glucan degradation in brewing mashes at temperatures up to 75 °C (167 °F) and in finished beer without affecting foam stability/head retention. The enzyme is produced from a specially selected strain of *Penicillium funiculosum*. The main activity of the enzyme is based on a thermotolerant  $\beta$ -glucanase (endo-1,3(4)- $\beta$ -D-glucanase: EC 3.2.1.6 and endo-1,4- $\beta$ -glucanase: EC 3.2.1.4). Practically no proteinase activity is contained. Beerzym BG SUPER is tested by specialized laboratories for purity and quality.

### Aim of Treatment

Glucan degradation in brewing mashes for improved lautering and filtration, as well as in finished beer to reduce viscosity and improve filtration without influencing foam stability.

### Product and Effect

As an endo-enzyme Beerzym BG SUPER hydrolyzes 1,4- $\beta$ -glycosidic bonds in cellulose, laminarine and other glucans which occur especially in barley. In this process glucose units are split off.

### Dosage

Beerzym BG SUPER is necessary in beer brewing when problems in the quality of the beer are to be expected, due to seasonal conditions affecting the malt used, or when part of the malt is replaced by adjunct (e.g. barley). The dosage of the enzyme depends on the quality of the raw material, the temperature and the contact time.

Guide value: 150-300 mL/ton malt ; 0.5-1 mL/100 L green beer

### Application

Dilute Beerzym BG SUPER with cold water. The enzyme dilution is added directly after milling and mashing in of the malt and/or the adjuncts into the mash tun or the mash copper. The enzyme is active throughout mashing, in lautering and wort boiling at temperatures up to maximally 80 °C (176 °F). In the final phase of wort boiling the enzyme is inactivated. In case of an application of Beerzym BG SUPER in the finished beer, it is dosed to the green beer during tunnage and is active throughout maturation in the finished beer storage tank. It is true that enzyme activity slows down at the usual temperatures in finished beer, however, the lowered activity due to temperature is taken into consideration by including the contact time into the calculation of the dosage so that a complete glucan degradation is also assured at temperatures around 2 °C (35.6 °F).

### Storage

Optimal storage is at 0-10 °C/32-50 °F. Higher storage temperatures lead to reduced shelf life. Avoid temperatures above 25 °C (77 °F). Reseal opened packagings tightly and use up soon.

## General Characteristics

Enzyme characteristics: the activity range of the enzyme is between pH 2.5 and pH 7.0, the optimum is at pH 5.0. The temperature range of the enzyme is between 2 °C (35.6 °F) and 75 °C (167 °F), the optimum is at 55 °C (131 °F). The diagrammes 1 and 2 show the influence of temperature and pH-value on the enzyme activity of Beerzym BG SUPER.

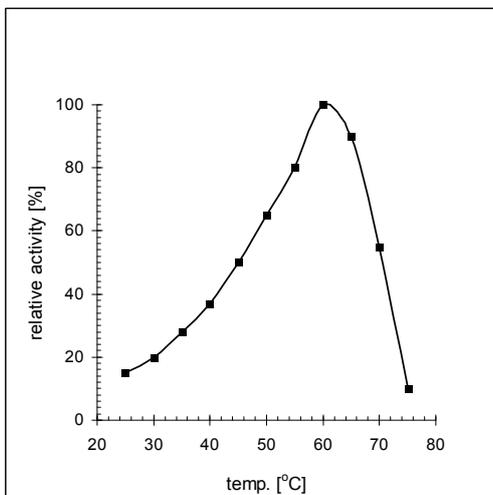


Fig 1: Influence of temperature on  $\beta$ -glucanase/ pentosanase (xylanase) activity (barley glucan/xylan, pH 5.0).

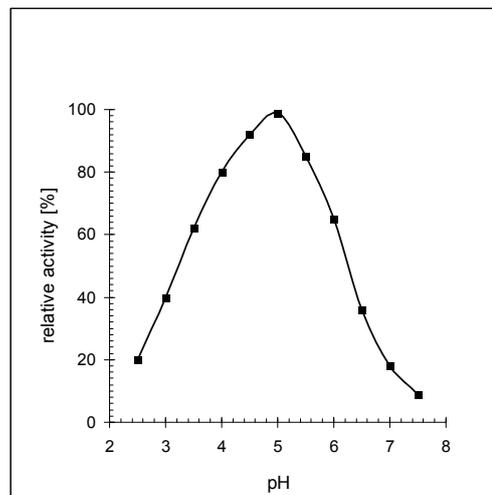


Fig 2: Influence of pH-value on  $\beta$ -glucanase/ pentosanase (xylanase) activity (barley glucan/xylan, 55 °C/131 °F).

## Please note:

When applying Beerzym BG SUPER the food regulations of the individual countries currently in force have to be adhered to.