



# Beerzym® BG HK4

Highly concentrated thermostable fungal- $\beta$ -glucanase for  
glucan degradation in brewing mashes

## Product description

Beerzym® BG HK4 is a liquid, highly concentrated special enzyme for glucan degradation in brewing mashes up to 90 °C (194 °F). The main activity of the enzyme is based on a thermostable  $\beta$ -glucanase (endo-1,3(4)- $\beta$ -D-glucanase: EC 3.2.1.6 and endo 1,4- $\beta$ -glucanase: EC 3.2.1.4).

Glucan degradation in brewing mashes for improved lautering and filtration.

As an endo-enzyme Beerzym® BG HK4 hydrolyzes 1,4- $\beta$ -glycosidic bonds in cellulose, lichenins and other glucans which occur specially in barley. In this process glucose units are split off.

When applying Beerzym® BG HK4 the food regulations of the individual countries currently in force have to be adhered to.

Enzyme characteristics: the activity range of the enzyme is between pH 2.0 and pH 6.5, the optimum is at pH 4.5. The temperature range of the enzyme is between 15 °C and 95 °C (59 °F and 203 °F), the optimum is at 75 - 85 °C (167 - 185 °F). The diagrammes 1 and 2 show the influence of temperature and pH value on the enzyme activity of Beerzym® BG HK4.

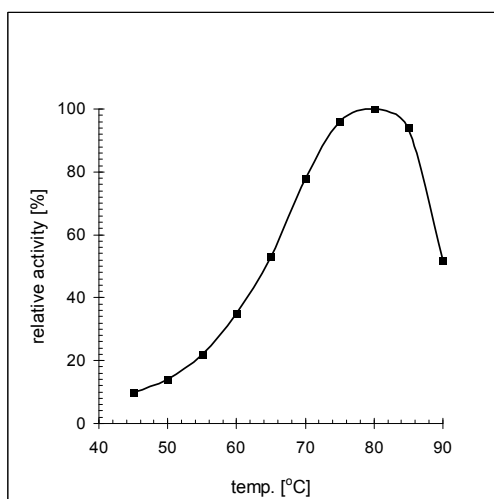


Fig 1: Influence of temperature on  $\beta$ -glucanase activity (barley- $\beta$ -glucan, pH 4.5).

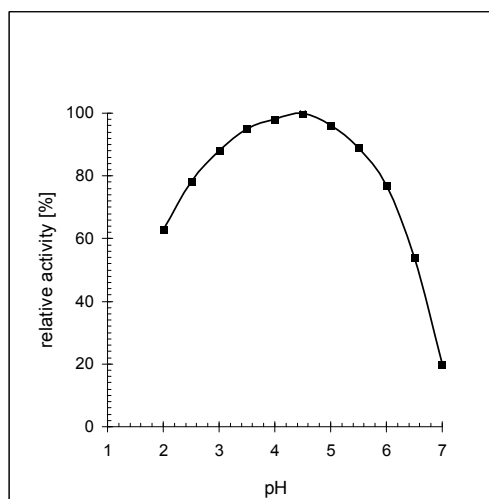


Fig 2: Influence of pH-value on  $\beta$ -glucanase activity (barley- $\beta$ -glucan, 75 °C /167 °F).

## Dosage

Beerzym® BG HK4 is necessary in beer brewing when problems in the beer quality are to be expected, due to seasonal conditions affecting the malt (barley/wheat malt) used, or when part of the malt is replaced by adjunct (e.g. barley, wheat). The dosage of the enzyme depends on the quality of the raw material, the temperature and the contact time.

Guide value: 50 - 100 mL/ton malt

Dilute Beerzym® BG HK4 with cold water. The enzyme dilution is added directly in the mash-in-water, before addition of the grist. The enzyme is best activated within the pH-range of the mash. Beerzym® BG HK4 is active from mashing in until wort boiling up to maximally 90 °C (194 °F), in the final phase of the wort boiling the enzyme is inactivated.

## 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.

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