Beerzym CRYSTAL

Special enzyme for the prevention and removal of colloidal haze in green beer

Product Description
Beerzym CRYSTAL is a liquid special enzyme for the prevention and removal of colloidal haze in green beer. The enzyme is produced from a specially selected strain of *Aspergillus niger*. The main activity of the enzyme is based on an α-amylase (1,4-α-D-glucan-glucanohydrolase: EC 3.2.1.1) well effective in the pH-range of beer, also at low temperatures. Beerzym CRYSTAL is tested by specialized laboratories for purity and quality.

Aim of Treatment
Prevention and decomposition of colloidal haze in green beer (e. g. glycogen).

Product and Effect
As an endo-enzyme Beerzym CRYSTAL hydrolyses 1,4-α-glycosidic bonds in starch and dextrins which particularly occur in green beers, produced by using portions of unmalted barley or produced from 100 % unmalted barley. In this process glucose is split off and may lead, with incorrect dosages, to taste modification (intensified impression of sweetness). Moreover microbiological stability is reduced with incorrect additions.

Dosage
Beerzym CRYSTAL is necessary in beer brewing when the use of unmalted barley leads to colloidal haze in green beer. The dosage of the enzyme depends on the quality of the raw material, the mashing process, the course of fermentation, the temperature, the contact time and the initial degree of haze of the beer to treat.
Guide value: 0.2-10 mL/hL green beer.

Application
Dilute Beerzym CRYSTAL with cold water. The enzyme dilution is added to the green beer during tunnage or to the finished beer in the storage tank. At standard temperatures, Beerzym CRYSTAL is active in green beer and finished beer. A lowered activity due to temperature must however be compensated by taking into consideration the contact time or the dosage.

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.

ERBSLÖH Geisenheim AG, Erbslöhstraße 1, 65366 Geisenheim, Germany, Tel: +49 6722 708-0

version 002 – 09/2012 VM – print 10.04.2015

Beerzym CRYSTAL

Special enzyme for the prevention and removal of colloidal haze in green beer

General characteristics

Enzyme characteristics: the activity range of the enzyme is between pH 2.0 and pH 7.0, the optimum is at pH 4.0 to 5.0. The temperature range of the enzyme is between 10 °C and 80 °C (50 °F and 176 °F), the optimum is at 60-70 °C (140-158 °F). Enzyme stability is within a pH-range of pH 1.5 to pH 6.5 with an optimum at pH 4.0-4.5. The temperature is stable up to 65 °C (149 °F), steadily decreasing towards zero until 85 °C (185 °F).
The diagrammes 1 and 2 show the influence of temperature and pH value on the enzyme activity of Beerzym CRYSTAL.

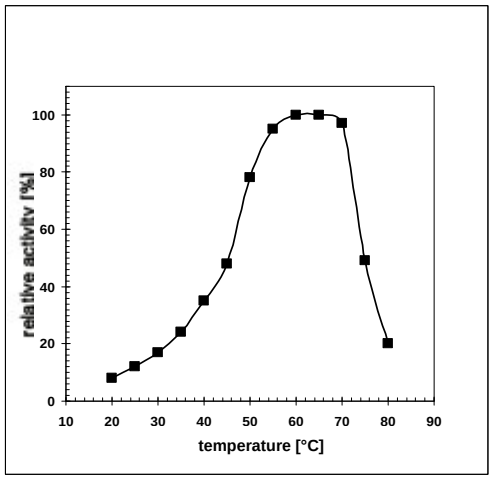

Fig. 1: Influence of the temperature on the activity of Beerzym CRYSTAL (0.1 % soluble starch, pH 4.5).

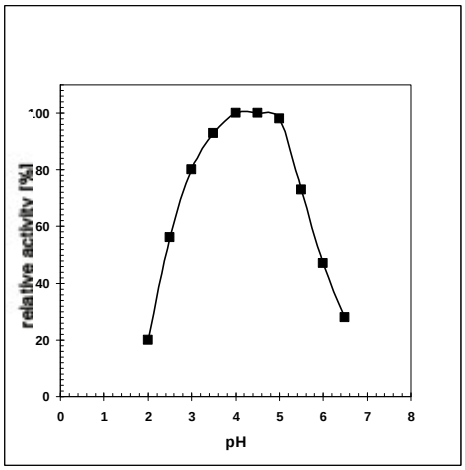

Fig. 2: Influence of the pH-value on the activity of Beerzym CRYSTAL (0.1 % soluble starch, 40 °C).

The diagrammes 3 and 4 show the influence of temperature and pH-value on the enzyme stability of Beerzym CRYSTAL.

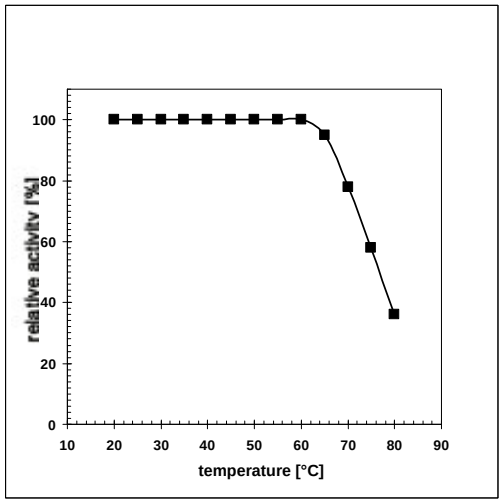

Fig. 3: Influence of temperature on the stability of Beerzym CRYSTAL (0.1 % soluble starch, pH 4.5).

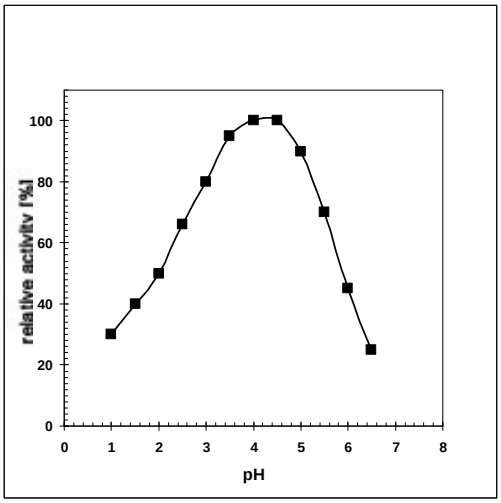

Fig. 4: Influence of the pH-value on the stability of Beerzym CRYSTAL (0.1 % soluble starch, 40 °C).

Please note:

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

ERBSLÖH Geisenheim AG, Erbslöhstraße 1, 65366 Geisenheim, Germany, Tel: +49 6722 708-0

version 002 – 09/2012 VM – print 10.04.2015