



Beerzym[®] AMYL-ST

Product Description

Beerzym AMYL ST is a special liquid enzyme for the liquefaction of starch in beer production with malt and adjuncts when the starch degradation is carried through in a cereal cooker at extremely high temperatures up to 105 °C (221 °F). These high temperatures are necessary when starch granules with small cells (e.g. millet) are present and for starch liquefaction in mashes with low pH-values around pH 5.0. The enzyme is produced from a specially selected strain of *Bacillus stearothermophilus*. The main activity of the enzyme is based on a thermostable, acid tolerant α -amylase (1,4- α -D-glucan-glucanohydrolase: EC 3.2.1.1).

Beerzym AMYL ST is tested by specialized laboratories for quality and purity.

**Extremely
thermostable, acid
tolerant bacterial
 α -amylase for
starch liquefaction
in beer production
with malt and
adjuncts**

Aim of Treatment

Liquefaction of the gelatinized, broken down starch in brewing mashes with temperatures of up to 105 °C (221 °F). Beerzym AMYL ST also works very well at pH-values up to pH 5.0.

Product and Effect

As an endo-enzyme Beerzym AMYL ST hydrolyzes 1,4- α -D-glycosidic bonds within the starch molecule. Products formed hereby are α -limit dextrines and oligosaccharides.

Dosage

Beerzym AMYL ST is needed in the brewing process when, due to the utilization of adjuncts (corn, millet) the activity of the α -amylase of the malt portion is not sufficient to liquefy the starch. The dosage of the enzyme depends on the quality of the raw material, the temperature and the reaction time.

Guide value: 200-400 ml/ton adjunct.

Application

Dilute Beerzym AMYL ST with cold water. The enzyme dilution is added into the cereal cooker before boiling the adjuncts. The enzyme is active within the pH-range of the mash up to 105 °C (221 °F).

Storage

Beerzym AMYL ST keeps its declared activity up to 36 months if stored optimally (0-10 °C/32-50 °F). Higher storage temperatures result in a shorter shelf life. Temperatures above 25 °C (77 °F) are to be avoided. Reseal opened packagings tightly and use up as soon as possible.

- please turn over -

General Characteristics

Enzyme characteristics: the activity range of the enzyme is between pH 4.0 and 8.0, the optimum is at pH 5.5-6.0 in the presence of substrate and calcium. The temperature range reaches from 50°C (122 °F) to 105 °C (221 °F) (max. 110 °C/230 °F), the optimal temperature is within the range of 80-100 °C (176 °F-212 °F) (max. 110 °C/230 °F), depending on the pH-value of the mash in the presence of substrate and calcium. The diagrammes 1 and 2 show the influence of temperature and pH-value on the enzyme activity of Beerzym AMYL ST.

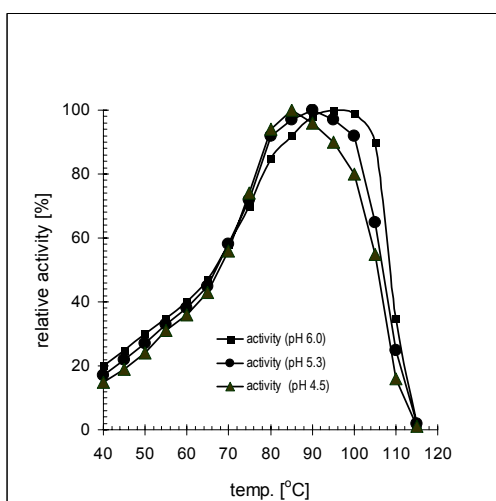


Fig 1: Influence of temperature on activity (10% soluble starch).

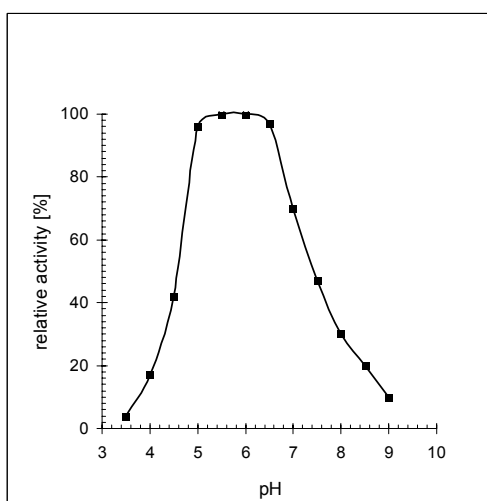


Fig 2: Influence of pH-value of the activity (10% soluble starch, 90 °C/194 °F).

Please note:

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