



CraftZYM® opal

Bacterial α -amylase for starch gelatinization and liquefaction in mash, especially for single mash infusion method

Product description

CraftZYM® opal is a liquid special enzyme for starch liquefaction in brewing with malt and raw grain portions (adjuncts) in single infusion mashing. The enzyme is produced from a specially selected strain of *Bacillus subtilis*. The main activity of the enzyme is based on an α -amylase (1.4- α -D-glucan-glucanohydrolase: EC 3.2.1.1).

CraftZYM® opal is tested by specialized laboratories for purity and quality.

Aim of treatment

Liquefaction of the gelatinized, broken-down starch in brewing mash from 45 °C up to 80 °C (176 °F).

Product and effect

As an endo-enzyme CraftZYM® opal hydrolyzes 1.4- α -D-glycosidic bonds within the starch molecule. Products formed hereby are α -limit dextrins and oligosaccharides.

Dosage

CraftZYM® opal is needed in the brewing process when, due to the utilization of raw grain (barley, rice, corn) the activity of the α -amylase of the malt portion is not sufficient to liquefy the starch. Also, when a single infusion method is used with a primary temperature profile between 62 – 66 °C. At this temperature, the CraftZYM® opal has the highest activity and increase measurable the brewhouse yield. 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 or grist.

Very important: The dosing point of the enzyme in the Brewhouse, will be in the “mash-in-water” before the grist will be mashed in and as a 2nd parameter; the Calcium content in the brew water must be higher than 35mg/L to ensure a 100% activity of the enzyme.

Application

Dilute CraftZYM® opal with cold water. Dosage into the water before “mash in”. The enzyme is active within the pH-range of the mash up to 80 °C (176 °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 packaging tightly and use up soon.



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General characteristics

Enzyme characteristics: the activity range of the enzyme is between pH 4.0 and 8.0, the optimum is at pH 5.8 – 6.0 in the presence of substrate and calcium. The temperature range is between 30 °C (86 °F) and 90 °C (194 °F), the temperature optimum is at 70 – 80 °C (158 – 176 °F) in the presence of substrate, calcium and optimal pH-value.

The diagrams 1 and 2 show the influence of temperature and pH-value on the enzyme activity of CraftZYM® opal.

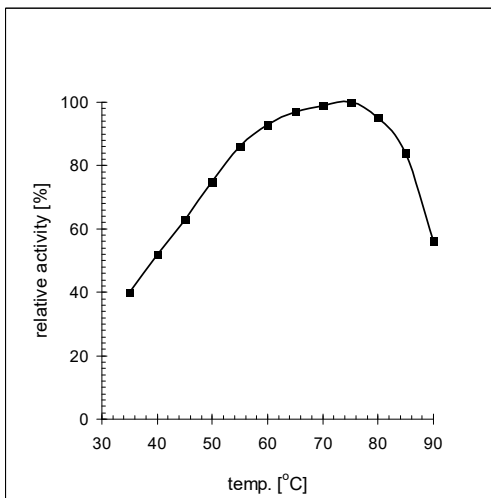


Fig. 1: Influence of temperature on activity (16 % starch; pH 6.0).

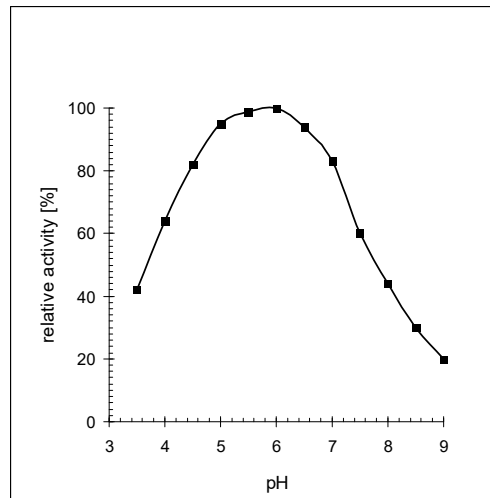


Fig. 2: Influence of pH-value on activity (16 % starch; 70 °C /158 °F).

Please note

When applying CraftZYM® opal the food regulations of the individual countries currently in force have to be adhered to.