Product description
Distizym® AG ALPHA is a combined enzyme for saccharification of liquefied starch. The enzyme is obtained from specially selected strains of Aspergillus niger and Aspergillus oryzae. The principal activities in Distizym® AG ALPHA are a fungal glucoamylase (exo-1,4-α-D-glucosidase: EC.3.2.1.3.) and a fungal α-amylase (1,4-α-D-glucan-glucanohydrolase: EC.3.2.1.1).

Characteristics of Distizym® AG ALPHA are:
- Maximum saccharification of liquefied starch
- Good efficacy between pH 4.0 - 5.5 and at 60 °C

Dosage
The fungal glucoamylase’s field of activity in Distizym® AG ALPHA extends from pH 2.5 - 6.5, with the optimum being around pH 3.8 - 4.2. The enzyme’s temperature range covers 25 - 80 °C, with the optimum temperature being 65 °C.

The fungal α-amylase’s field of activity in Distizym® AG ALPHA extends from pH 3.0 - 7.0, with the optimum being around pH 5.0 in the presence of substrate and calcium. The temperature range covers 25 - 70 °C, with the optimum temperature being 50 °C. The optimum temperature rises to 60 °C in the presence of higher concentration of starch, calcium and an optimum pH value.

Dosage in liquefied grain or potato starch: 450 mL/t

A higher or lower dosage may be necessary in the event of deviations from standard conditions.

Distizym® AG ALPHA is diluted with cold water. The diluted enzyme is added following starch liquefaction, during the cooling phase, at a temperature below 60 °C. In the high pressure cooking process (HPCP) or "hard" starch digestion process at 5 - 6 bar or 150 - 160 °C, addition in combination with Distizym® BA-N, Distizym® BA-TS, or Distizym® AG by addition to the saccharification vat is possible, when the mash feed is transferred to the vat at temperatures that do not exceed 60 °C. The addition of calcium (as Ca(OH)2, CaCl2, etc.), at a level of 20 - 40 ppm, supports the activity and stability of the fungal α-amylase in Distizym® AG ALPHA.

Figures 1 and 2 show the influence of temperature and pH value on enzyme activity of the fungal α-amylase in Distizym® AG ALPHA.
**Distizym® AG ALPHA**

Combined enzyme for starch saccharification in distilling mashes made from farinaceous raw materials

Figures 3 and 4 show the influence of temperature and pH value on enzyme activity of the fungal α-amylase in Distizym® AG ALPHA.

Fig. 3: Influence of temperature on the fungal α-glucoamylase activity in Distizym® AG ALPHA (10 % soluble starch, pH 5.0).

Fig. 4: Influence of pH value on the fungal α-glucoamylase activity in Distizym® AG ALPHA (10 % soluble starch, 50 °C).

**Storage**

Optimum storage is at 0 - 10 °C. Higher storage temperatures reduce shelf life. Temperatures above 25 °C should be avoided. Opened containers should be tightly sealed and used as soon as possible.