# Beerzym® Saphir

Thermotolerant, pH-tolerant fungal special enzyme for the degradation of beta-glucans and proteins in beer with seasonal quality fluctuations of the crop

## Product description

Beerzym® SAPHIR is a special enzyme which is applied in beer production for the degradation of betaglucan and protein, which could incur problems as, for instance, increased cloudiness in beer or bad filter throughput by clogging of the filter. The main activity of the enzyme is based on a thermotolerant beta-glucanase (endo-1,3(4)-β-D-glucanase: EC. 3.2.1.6), a pentosanase (endo-xylanase: n.v.) and an acidic proteinase (endo-proteinase EC. 3.4.2x.xx).
Beerzym® SAPHIR is specially applied whenever the raw material malt causes problems which require the degradation of betaglucans. At the same time, proteins are decomposed to reduce stability problems and thus the formation of turbidity. Furthermore the enzyme improves the nitrogen supply of the beer yeasts.

As an endo-enzyme Beerzym® SAPHIR hydrolyzes 1,4-β-glycosidic bonds in cellulose, lichenins and other β-glucans, as well as in pentosans which occur especially in malted and unmalted cereals. In this process glucose units are split off. Proteins are hydrolysed to peptides and amino acids. The enzyme is active within a broad temperature range of 10 - 70 °C and at pH-values of pH 2.0 - 6.0.

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

Enzyme characteristics: the Beerzym® SAPHIR activity range of the β-glucanase/pentosanase is between pH 2.5 - 7.0, the optimum is at pH 5.0, the activity range of the acidic proteinase is between pH 1.5 - 6.5, with the optimum at pH 3.0.
The temperature range of the enzyme is between 25 - 75 °C (77 - 167 °F) regarding the β-glucanase/pentosanase, the temperature optimum is at 55 °C (131 °F), regarding the acidic proteinase it ranges from 20 - 75 °C (68 - 167 °F), with the optimum at 60 °C (140 °F).

The diagrammes 1 and 2 show the influence of temperature and pH value on the β-glucanase/pentosanase activity of Beerzym® SAPHIR.

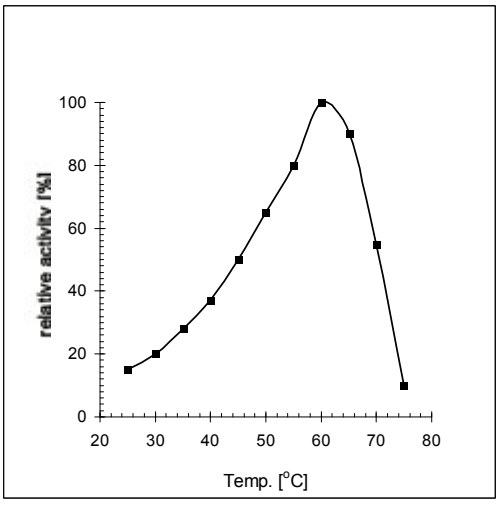


Fig. 1: influence of temperature on the β-glucanase/xylanase activity (barley glucan/xylan, pH 5.0).

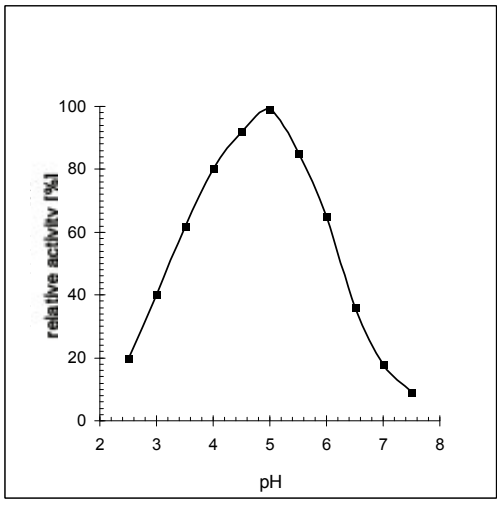


Fig. 2: influence of the pH-value on the β-glucanase/xylanase activity (barley glucan/xylan, 55 °C).

ERBSLÖH Geisenheim GmbH • Erbslöhstraße 1 • 65366 Geisenheim, Germany
Tel.: +49 6722 708-0 • Fax: +49 6722 6098 • info@erbsloeh.com • www.erbsloeh.com

ERBSLÖH
Fortschritt macht Zukunft®


Version 003 – 12/2018 VM – printed 13.12.2018

# Beerzym® Saphir

Thermotolerant, pH-tolerant fungal special enzyme for the degradation of beta-glucans and proteins in beer with seasonal quality fluctuations of the crop

The diagrammes 3 and 4 show the influence of temperature and pH-value on the acidic proteinase activity of Beerzym® SAPHIR.

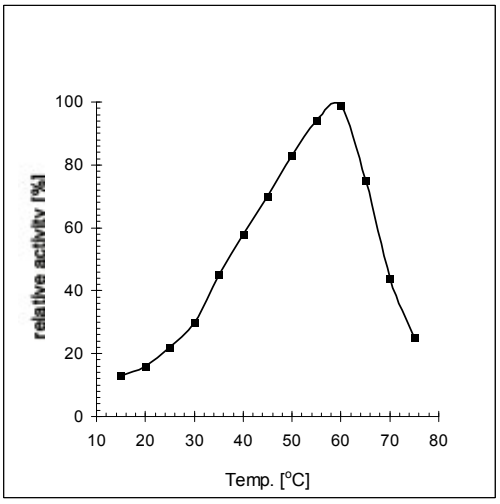


Fig. 3: influence of the temperature on the acidic proteinase activity (0.5 % casein solution, pH 3.0).

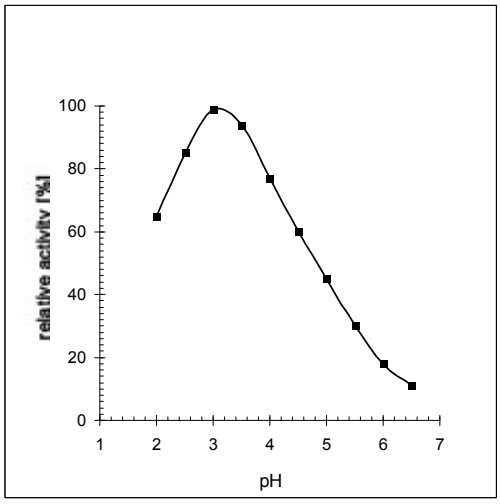


Fig. 4: influence of the pH-value on the acidic proteinase activity (0.5 % casein solution, 60 °C).

## Dosage

The following standard dosages are recommended:
80 mL Beerzym® SAPHIR/ton wheat, barley or malt (with losses in quality)
110 mL Beerzym® SAPHIR/ton rye / dinkel (spelt wheat) /oat
5 - 25 mL Beerzym® SAPHIR/hL green beer or beer in ageing

In case of a deviation from standard conditions a higher or lower dosage might be required.

Beerzym® SAPHIR is diluted with cold water, yet the pH-value should not exceed pH 5.5. It is also possible to add Beerzym® SAPHIR as first component into the fermentation tank or continuously into the cooled wort flow to the fermentation tank. Alternatively, the required enzyme dosage is added into the yeast propagation tank during yeast pre-propagation, respectively during pumping over from fermentation into storage tank.

## 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 GmbH • Erbslöhstraße 1 • 65366 Geisenheim, Germany
Tel.: +49 6722 708-0 • Fax: +49 6722 6098 • info@erbsloeh.com • www.erbsloeh.com

ERBSLÖH
Fortschritt macht Zukunft®


Version 003 – 12/2018 VM – printed 13.12.2018