



DISCOVER AND DELIVER

MagiZyme® FAA

Brewing Enzyme

MagiZyme® FAA is a fungal alpha-amylase used for increased starch breakdown, facilitating a higher alcohol output.

MagiZyme® FAA fungal α -amylase is derived from a selected strain of *Aspergillus oryzae*. Potential application areas for **MagiZyme® FAA** enzyme include carbohydrate haze removal, flavour modification, accelerated fermentation, malt standardisation, improved attenuation and high maltose brewing syrup production. This enzyme is permitted for general use as a processing aid under FSANZ Standard 1.3.3 E.C. 3.2.1.1.

Typical Characteristics

| | |
|--------------------------|-----------------------------|
| Activity: | Min. 40000 – 4400 SKBU/g |
| Appearance: | Amber to light brown liquid |
| pH: | 5.5 – 6.5 |
| Grade: | Food grade, Kosher |
| Specific Gravity: | 1.1 – 1.2 g/ml |
| Protein content: | 1 – 10% |

Unit Definition

The enzymatic activity of **MagiZyme® FAA**

α -amylase is expressed in SKBU/g. One SKBU will dextrinise 1.0 gram of limit-dextrin substrate per hour under assay conditions. The assay method is available upon request.

pH Dependency

The pH range for the activity of **MagiZyme® FAA** enzyme is approximately from 4.4 to 6.0, with an optimum performance at pH 5.2. The exact pH optimum will depend on process variables, including temperature, time, substrate nature, and concentration.

Temperature Dependency

The enzymatic activity of **MagiZyme® FAA** enzyme is effective in the temperature range from 40°C to 65°C, with an optimum performance at 50°C. The exact temperature optimum will depend on many process variables, such as pH, time, substrate nature, and concentration.

Inactivation

The enzyme can be inactivated by holding for 30 minutes at a temperature of 80°C to 85°C.

Biochemical Parameters

Enzyme Type: 1,4 – α -D-glucan,
Hydrolase

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|--------------|-----------|
| IUB#: | 3.2.1.1 |
| CAS#: | 9000-90-2 |

Application Recommendations

MagiZyme® FAA fungal α -amylase hydrolyses the α -1,4-glycopyranose linkages of starch, dextrans and related oligosaccharides. Specifically, chain ends, (α -1,4 bonds) are attacked and consequently a high percentage of maltose is produced. Maltose is the predominant malt-derived brewing sugar.

Note that the branch points on limit-dextrans are not attacked, so hydrolytic action is self-limiting.



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Carbohydrate Haze Removal

Hazes which do not respond to normal clarification measures may result from starches or oligosaccharides release into

the worts from poor quality raw materials or processing errors.

Correction of Slow Fermentation

Slow or sluggish fermentations can be speeded up using **MagiZyme® FAA** enzyme.

Improving the Attenuation Limit

Small, but significant improvements in attenuation limits can be gained by adding **MagiZyme® FAA** fungal α -amylase.

Dosage

The following typical dosage rates are recommended as starting points for the optimisation of enzyme dosage:

| | |
|---|-------------|
| Carbohydrate haze removal: | 0.5 – 4 ppm |
| Correction of slow fermentation: | 5 – 20 ppm |
| Improving the attenuation limit: | 20 – 75 ppm |

Regulatory Status

MagiZyme® FAA enzyme complies with the current FAO/WHO and Food Chemical Codex recommended specifications for food-grade enzymes and is **GRAS** (Generally Recognised As Safe) in the United States.

Storage

MagiZyme® FAA α -amylase will meet the declared activity of 40000 SKBU/g upon arrival at the customer's plant.

MagiZyme® FAA can be safely stored in unopened and sealed original containers. Enzyme containers should be stored below 20°C, preferentially refrigerated and sheltered against direct sunlight.

During storage **MagiZyme® FAA** enzyme will have an activity loss of less than 10% per year at a temperature of 10°C to 15°C.

For more information on the storage of this product, please contact your Zymus International Limited representative.

Packaging

MagiZyme® FAA enzyme is available in 28 Kg polyethylene pails, 225 Kg polyethylene drums and 1125 Kg polyethylene totes. Please contact Zymus International for detailed information.

Safety and Enzyme Handling

Inhalation of enzyme dust and mists should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes.

For detailed handling information, please refer to the Material Safety Data Sheet.



Technical Services

Zymus International Limited welcomes the opportunity to work with customers offering technical services with the use of our products in application development and optimisation.

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