

# Technical Information



## abv Glucoamylase 400 (GAG 511)

### Glucoamylase for starch hydrolysis

#### Description

abv Glucoamylase 400 is a food grade saccharifying glucoamylase or amyloglucosidase enzyme derived from a selected strain of *Aspergillus niger*. It is an exoglucosidase capable of hydrolysing both the  $\alpha$ -1,6 and  $\alpha$ -1,4 glucosidic linkages of starch, liberating single glucose units.

#### Benefits

Maximises the conversion of starch containing substrates to fermentable sugars and minimises residual carbohydrates. Provides a high degree of attenuation.

#### Dose rate

Brewhouse	0.5 – 1 kg/t of grist
Fermentation	3 – 5 g/hl wort.

#### Application

abv Glucoamylase 400 can be used to produce low calorie beers. In this application it can be added directly to the mash vessel at the mashing-in stage. Alternatively, it can be added to cooled worts after yeast-pitching.

It can also be used in the starch industry in the production of maltodextrins, glucose and high fructose syrups. abv Glucoamylase 400 has applications in the production of potable alcohol.

#### Activity

abv Glucoamylase 400 is standardised at 400 AMGP/g. One AMG unit is defined as the amount of enzyme which hydrolyses one  $\mu$ mol of p-nitrophenyl  $\alpha$ -glucopyranoside per minute at 37°C and pH 4.4

#### Properties

abv Glucoamylase 400 can be used between pH 3.5 and pH 5.0 (the optimum being pH 4.0 – 4.4) and at temperatures between 20°C and 65°C.

Total inactivation is obtained by heating at 95°C for 10 minutes or at 100°C for 3 minutes.

Typical beer pasteurisation temperatures will not totally inactivate abv Glucoamylase 400.

abv Glucoamylase 400 is a brown liquid with a specific gravity of 1.0 -1.2

Colour may vary from batch to batch.

#### Microbiological specification

Total Viable Count	< 50000/g
Salmonella sp.	absent in 25g
Coliforms	< 30/g
Anaerobic sulphate reducers	< 30/g
Staphylococcus aureus	absent in 1g
Antibacterial activity	negative by test
Mycotoxins	negative by test

#### Heavy metals specification

Cadmium	< 0.5 mg/kg
Mercury	< 0.5 mg/kg
Arsenic	< 3 mg/kg
Lead	< 5 mg/kg

#### Conformity to standards

abv Glucoamylase 400 conforms to the specifications laid down by the joint FAO/WHO Expert Committee on Food Additives (JECFA) and the Food Chemicals Codex (FCC)

When used as a processing aid under 21 CFR 101.00, it may be exempt from FDA labelling requirements and is usually not listed.

#### Packaging and storage

abv Glucoamylase 400 is available in 25 kg or 1000 kg containers and should be stored in a dry cool area and protected from exposure to direct sunlight. abv Glucoamylase 400 is stable for six months when the storage temperature does not exceed 20°C. If stored at 5°C the product will maintain the declared activity for 12 months.

#### Safety and handling

Avoid unnecessary contact with enzyme preparations during handling. In the event of spillage, rinse with water. Additional information can be found in the MSDS.