

Enzymation Panzym® AG XXL



Efficient Degradation of Starch for Fruit and Vegetable Processing

Panzym AG XXL enzyme from Eaton's Begerow Product Line is an amyloglucosidase produced through submerge fermentation. The main activity of Panzym AG XXL enzyme is an amyloglucosidase that degrades alpha 1.4 and alpha 1.6 compounds into solute starch and dextrin. Amylase AG XXL enzyme additionally hydrolyzes great quantities of alpha 1.4 glycoside compounds of amylose and amylopectin.

Apple and pear juices produced in the fruit juice trade can contain large quantities of starch, particularly during the beginning of the harvest. In order to produce clear fruit juices, this starch must be hydrolyzed to prevent secondary hazing in the concentrate.

The specific advantages of Panzym AG XXL enzyme:

Acid-stable fungal amylase for effective starch degradation

- High glucoamylase activity at a low pH value
- Very high resistance to heat at 158 °F (70 °C) over a period of several hours
- Optimum temperature at 149 °F (65 °C)
- Lower dosage

Application and Effect

Panzym AG XXL enzyme is dosed according to the starch concentration level in the fruits, which varies depending on the season. Starch causes problems clarifying and filtering juices and can lead to secondary hazing in the finished product. Any starch must be degraded prior to storage in order to produce clear juice or concentrate. The largely crystalline starch contained in the fruit is dissolved (gelatinized) during the heat treatment (at temperatures exceeding 131 – 140 °F (55 – 60 °C) in an aroma system during the pasteurizing and concentrating processes). Dissolved starch can be degraded enzymatically (with Panzym AG XXL enzyme for example). An iodine test should be used to track starch identification and degradation.

- Determining the total starch: Heat 2.7 fl dr (10 ml) of juice to more than 176 °F (80 °C) (not necessary if the sample is removed directly from the aroma system) and cool to room temperature.

- Determining the collidally dissolved starch: In order to determine the enzymatically degradable, colloiddally dissolved starch in unheated juice, the sample must be filtered to remove gelatinized grains of starch.

- Carefully pour approximately 0.27 fl dr (1 ml) of an iodine solution on the surface of the juice without mixing and determine the color by the boundary layer (reaction zone).

(Iodine solution: Solution of 0.56 dr (1 g) of iodine and 5.6 dr (10 g) potassium iodide in 33.81 fl oz (1 l) of water)

Evaluation

1. No change in the color of the iodine solution (red brown)
= no starch
2. The color of the iodine solution turns brown.
= partially hydrolyzed starch
3. The color of the iodine solution turns blue, dark blue, or black.
= starch

Recommended Dosage

Application	Dosage
Juice after the aroma system or heat treatment	0.26 – 3.84 fl oz/1,000 gal (0.2 – 3 ml/100 l)

Activity and Stability

pH value range and temperature profile of Panzym AG XXL enzyme:

pH value range: 3.0 – 4.0, optimum at 4.0

Temperature range: 50 – 158 °F (10 – 70 °C) over a period of several hours, optimum 149 °F (65 °C)

Enzyme Application

The Panzym AG XXL enzyme product should be mixed in cold, clean water at a ratio of 1:5 to 1:10. It can then be added in the enzymation tank while it is being filled or to the flow of product by means of a dosing system.

Temperature

Due to the diminished enzymic activity, avoid temperatures below 50 °F (10 °C).

Safety and Purity

Panzym AG XXL enzyme complies with the FAO/WHO (JECFA and FCC) specifications for enzymes in the food industry. Application of the product poses no hazard to health if used as directed and processed properly.

Panzym AG XXL enzyme is produced according to the self-cloning process and is classified as a non-genetically modified product in accordance with the German Gene Technology Law (implementing Council Directive 90/219/EEC), the Austrian Gene Technology Law (BGBL 510/1994), and Swiss regulations (Ordinance on the Release into the Environment of Organisms SR 14.911).

Panzym AG XXL enzyme has a standard activity of 1,700 AGU/fl dr (460 AGU/ml).

Further safety information can be found in the relevant Material Safety Data Sheet, which can be downloaded from our website.

Panzym AG XXL enzyme is filled aseptically following sterile filtration and is therefore virtually germ-free. Panzym AG XXL enzyme is a brownish liquid enzyme preparation that is free of preservatives, has a density of approximately 10,015 lb/gal (1.2 g/ml) and a typical odor of fermented products.

Storage

It is recommended to store the product with the packaging intact away from sunlight at a temperature of 32 – 50 °F (0 – 10 °C). The product is formulated for optimum stability. Nevertheless, the activity of enzymes gradually diminishes over time. Excessively long periods of storage and/or adverse conditions including high temperatures could necessitate increasing the dosage.

Delivery Information

Panzym AG XXL enzyme is sold under article no. 95.220.250 and is available in the following package size:

6.6 gal (25 l) PE canister

HS Customs Tariff: 3507 90 90

Certified Quality

Panzym AG XXL enzyme is regularly monitored during the production process for consistently high product quality. These inspections include wide-ranging technical functional criteria as well as safeness in accordance with relevant laws governing production of foods. Strict controls are additionally carried out immediately prior to and during final packaging.

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For more information, please e-mail us at filtration@eaton.com or visit us online at eaton.com/filtration for a complete list of Eaton's filtration products.

Not all products in Eaton's Begerow Product Line are available in all regions. Please contact your local Eaton Filtration office to determine availability.

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