GENENCOR DIVISION
Food Enzymes
foodenzymes@danisco.com
www.danisco.com

Valid from: June 7, 2013

PRODUCT DESCRIPTION - PD 213931-11.1EN

DIAZYME® X4

Description

DIAZYME® X4 is a saccharifying glucoamylase (or amyloglucosidase) enzyme derived from Aspergillus niger.

Application areas

Brewing and potable alcohol production

Potential benefits

- BREWING:
- Maximises conversion of starch substrates to fermentable sugars - mainly glucose
- Minimises residual carbohydrates
- Can provide a high level of degree of fermentation (RDF >83 %) depending on process
- POTABLE ALCOHOL PRODUCTION:
- Increases alcohol production

Usage levels

Typical dosage rate	
In the mash	0.5-10 kg/MT of dry grist
In potable alcohol production	0.3-0.6 kg/MT of dry grist

Directions for use

DIAZYME® X4 is recommend to be added in mash at mashing-in or right after mashing-in.
For potable alcohol production DIAZYME® X4 should be added at temperatures below 70 °C at saccharafication for complete saccharification or in the fermentor.

Composition

DIAZYME® X4 is composed of:

• Water	60 - 65 % (w/w)
• Glucan 1,4-alpha-glucosidase	25 - 30 % (w/w)
• Dextrose	10.0 % (w/w)
• Sodium benzoate	0.26 - 0.35 % (w/w)
• Potassium sorbate	0.09 - 0.13 % (w/w)

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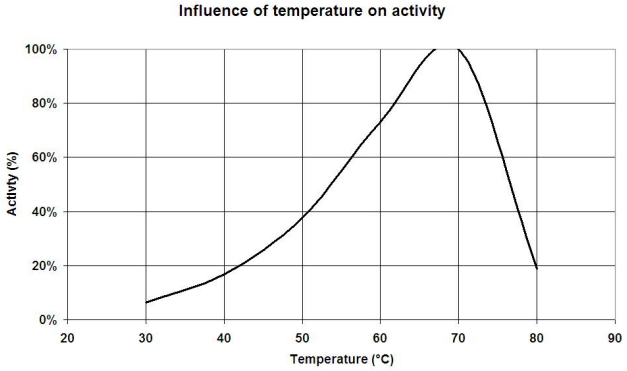
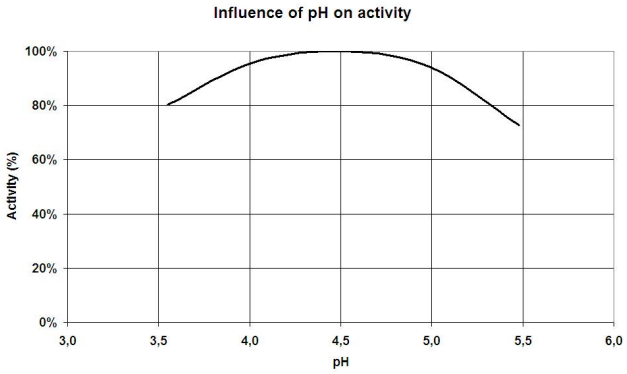
Physical/chemical specifications

Physical form	liquid
Specific gravity	1.12 +/- 0.03 kg/l
Colour*	brownish
Activity	min. 350 GAU/g

*Colour may vary from batch to batch.





The data for the graphs are generated under laboratory conditions and may not reflect performance in the application. It is therefore recommended to evaluate the performance under the specific local conditions.

Microbiological specifications

Total viable count	less than 10000 /ml
Coliforms	less than 15 /ml
E. coli	absent in 25 ml
Salmonella species	absent in 25 ml
Lactic acid bacteria	less than 5 /ml
Yeast	less than 10 /ml
Mould	less than 10 /ml
Mycotoxins*	negative by test
Antibiotic activity	negative by test

* Aflatoxin B1, ochratoxin A, sterigmatocystin, T-2 toxin, zearalenone

Heavy metal specifications

Arsenic	less than 3 mg/kg
Lead	less than 5 mg/kg
Heavy metals (as Pb)	less than 30 mg/kg

Nutritional data

Calculated values per 100 g

Energy	130/550 kcal/kJ
Protein	16-20 g
Fat	less than 1 g
Carbohydrates	12-17 g
Moisture	60-70 g
Ash	less than 5 g

Storage

DIAZYME® X4 should be stored dry and cool (max. 10°C/50°F) and sheltered against direct sunlight

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DIAZYME® X4

Packaging

28 kg plastic can
225 kg plastic drum
1125 kg transparent container

Purity and legal status

DIAZYME® X4 meets the specifications laid down by the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and the Food Chemicals Codex (FCC) and is GRAS (Generally Regognised as Safe) in the US. When used as a processing aid under 21 CFR 101.00, it may exempt from FDA labelling requirements and is typically not labelled.

DIAZYME® X4 is approved by most countries for use in food. However, as legislation regarding its use in food may vary from country to country, local food regulations should always be consulted concerning the status of this product. Advice regarding the legal status of this product may be obtained on request.

Safety and handling

Avoid unnecessary contact with enzyme preparations during handling. In case of spillage, rinse with water. Additional information can be found in the Material Safety Data Sheet.

Kosher status

DIAZYME® X4 is certified kosher pareve by Union of Orthodox Jewish Congregations of America (OU).

GMO status

The microorganisms used for production of DIAZYME® X4 have not been genetically modified according to the definition of Directive 2009/41/EC on the contained use of genetically modified microorganisms

Allergens

The table below indicates the presence (as added component) of the following allergens and products thereof (according to US Food Allergen and Consumer Proctection act (FALCPA), 2004 and Directive 2000/13/EU as amended).

Yes	No	Allergens	Description of components
	X	Wheat	
	(X)	Other cereals containing gluten	Glucose (used in fermentation)* Glucose. This level was below quantification level of 5 ppm, based on ELISA analysis. This component is exempted from allergen labeling in the EU.
	X	Crustaceans	
	X	Eggs	
	X	Fish	
	X	Peanuts	
	(X)	Soybeans	Soy meal (used in fermentation)*
	X	Milk (incl. lactose)	
	X	Nuts	
	X	Celery	
	X	Mustard	
	X	Sesame seeds	
	X	Sulphur dioxide and sulphites (>10mg/kg)	
	X	Lupin	
	X	Molluscs	

*Danisco has determined that fermentation nutrients are outside the scope of US and EU food allergen labeling requirements [1] , [2]. [1] Position paper sent by ETA to the FDA on September 12, 2005 (www.enzymetechnicalassoc.org/Allergen%20psn%20paper-2.pdf). [2] Summarized in the position paper of the Association of Manufacturers and Formulators of Enzyme products: http://www.amfep.org/documents/AmfepstatementScopeAllergyLabellingDirf