



Globalzyme [®] Yeast Lactase LP

Data specification sheet

Globalzyme Yeast Lactase LP[®]

Description

Globalzyme Yeast Lactase LP[®] is a lactase enzyme obtained from the controlled fermentation of *Kluyveromyces lactis*. B-galactosidase (lactase enzyme) hydrolyses the β -glycosidic bond in D-lactose to form D-galactose and D-glucose.

Globalzyme Yeast Lactase LP[®] is food grade, GRAS, Kosher and does not contain any food or chemical preservatives.

Functionality

Lactose, also known as “milk sugar”, is a disaccharide made up of one molecule of glucose and one molecule of galactose present in milk and other dairy products. In order for lactose to absorb from the intestine into the body, it has to be split into glucose and galactose, and it can only be separated by lactase.

During childhood lactase is present in the small intestine and breaks lactose effectively however, our lactase production decreases with age. It is estimated that more than 50% of adults around the world suffer of lactase deficiency and this causes lactose digestion problems and lactose intolerance. Symptoms of lactose intolerance include abdominal bloating, gas, nausea, diarrhea and stomach ache.

Globalzyme Yeast Lactase LP[®] is used to reduce and/or eliminate lactose in dairy products and other goods with milk in their formulation.

Benefits

- **Globalzyme Yeast Lactase LP[®]** breaks lactose bonds in glucose and galactose selectively and effectively.
- Lactose hydrolysis increases sweetness and decreases freezing point.
- Lactose hydrolysis prevents crystallization and negative effects of it in palatability and protein stability.
- **Globalzyme Yeast Lactase LP[®]** is stable in milk and other dairy products pH range.
- Highly pure and almost free of protease and other secondary enzymatic activities.
- Gives an excellent color and flavor.
- It is standardized to assure daily process efficiencies and its cost/benefit analysis
- Convenient, easy to use and high activity liquid formulation.
- Fulfills FCC and FAO/WHO JECFA specifications for food grade enzymes.
- (OK-D) Organized Kashrus Laboratories Dairy Certified.

Properties

Activity	Min. 17,000 ONPGU*/g
Form	Liquid
Color	From no color to light yellow (Color variation does not affects product activity)
Solubility	Soluble in water
Specific gravity	1.15-1.22

*1 ONPG Unit (ONPG U) is the enzymatic activity amount that will increase the optic density (OD) of a defined substrate of o-nitrophenol- β -D-galactopyranoside (ONPG) to 1 in 10 minutes at 425 nm, under assay conditions.

Usage guidelines

Globalzyme Yeast Lactase LP[®] is use in lactose free or lactose reduced dairy products production, such as milk, ice cream, condensed milk, cheese, yogurt and milk powder.

Enzymes requirements and performance are generally determined by physical and chemical properties of the substrate, substrate concentration, desired hydrolysis rate and catalytic environment (pH, temperature, time, etc). To establish an adequate dose, laboratory essays must be done.

For an initial evaluation it is recommended to use 2 ml of Globalzyme Yeast Lactase LP per milk liter. This recommendation is based in a 100% hydrolysis of lactose in 20-24 hours at 4°C.

In general, hydrolysis speed is proportional to enzyme concentration. When process temperatures are low or when time of reaction decreases a higher enzyme concentration is required. For example, lowering the process temperature by 10°C or decreasing reaction time to half will require to double enzyme doses. Contrary if the temperature increases 10°C or reaction time is double, only half a dose of enzyme is required.



Globalzyme[®] Yeast Lactase LP

Data specification sheet

pH

Globalzyme Yeast Lactase LP[®] is stable and efficient in a higher pH range of milk and dairy products

pH	5.5-7.5
----	---------

Globalzyme Yeast Lactase LP[®] is quickly inactivated under pH 5.0

Temperature

Optimum range	40-50°C
Effective range	30-55°C
Solubility range	Up to 55°C

The enzyme is quickly inactivated at temperatures higher than 55°C and it is inactivated at pasteurization temperatures.

Packaging

Globalzyme Yeast Lactase LP[®] is available in 25 kg pails

Shelf life

In sealed containers, under cooled, dry conditions, a 10% loss of activity in a year is normal. Shelf life can be extended by storing under 6-10°C.

Globalzyme Yeast Lactase LP[®] fulfills the food Chemical Codex IV specifications for food grade enzymatic products.



Global Food
Division

Corporativo Global Food Division S. de R.L. de C.V.
Prolongación Calle 18 No. 218
Col. San Pedro de los Pinos
Ciudad de México, CP 01180
Tel. (55) 3095 8888

www.globalfooddivision.com

Rev. 10/18