

PRODUCT DESCRIPTION - PD 278496-3.4EN

Chymostar®

Description

Chymostar® is a single enzyme milk coagulant for today's dairy industry. Pure chymosin is produced by submerged fermentation with our preferred production strain *Trichoderma reesei*. The product contains an aspartic protease, Chymosin, a Milk-Clotting Enzyme with highly specific cleaving activity on k-casein. It is used to achieve optimal curd formation, high cheese yield, and correct flavor and texture development for the cheese.

Application areas

Chymostar® can be used for producing any type of cheese; hard, semi-hard, soft, mold-ripened, low-fat and ingredient cheeses.

Usage levels

Usage level 30 - 60 IMCU/ L of milk

Directions for use

It is recommended to dilute 1 volume of coagulant in 10-20 volumes of water prior to use determined by what is needed to ensure a uniform distribution in the cheese vat. The water should be potable with a slightly acid to neutral pH and be free of chlorine. The diluted coagulant should be used immediately, added to the milk with stirring for 2-3 minutes to ensure proper uniform distribution in the cheese vat. It is advised not to dilute the coagulant in larger quantities than what is needed immediately.

Composition

• Water	50 - 55 % (w/w)
• Glycerine	30 - 40 % (w/w)
• Sodium chloride	8 - 12 % (w/w)
• Chymosin	1 - 5 % (w/w)
• Sodium phosphate	0.5 - 1.0 % (w/w)
• Sodium sulfate	0.15 - 0.45 % (w/w)

Physical/chemical specifications

Physical form	liquid
Colour*	clear amber
pH	5.6 - 6.0
Specific gravity	1.1 - 1.2
Activity	min. 700 IMCU/ml
Amylase	<0.05 CU/100 IMCU
Lipase	<0.06 TIPIU/100 IMCU

*Colour may vary from batch to batch.

Microbiological specifications

Total viable count	<100 CFU /ml
Coliforms	<10 CFU /ml
Mould	<10 CFU /ml
Yeast	<10 CFU /ml
E.coli	absent in /25 ml
Salmonella	absent in /25 ml
Listeria monocytogenes	absent in /25 ml
Staphylococcus aureus	absent in /ml
Anaerobic sulfite reducing bacterial	<30 CFU /ml
Production strain	NEG /ml
Antibacterial Activity	NEG /ml

Heavy metal specifications

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

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Nutritional data

Energy	148/617 kcal/kJ
Fat	0 g
Protein	1-5 g
Carbohydrates	30-40 g
- Fiber	0 g
- Total sugar	0 g
- Added sugar	0 g
Moisture	50-55 g
Ash	5-15 g
Sodium	4296 mg
Potassium	0 mg
Calcium	0 mg

*other minor parameters not listed include Trans Fat, Saturated Fat, Cholesterol, Vit A, Vit C, Vit D, Iron, etc. are considered zero.

Storage

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

Ambient temperature (between 4 - 25°C) shipment is acceptable if the shipping duration is <7 days.

Packaging

1L plastic bottle
20L plastic container
1000L transparent container

Purity and legal status

Chymostar® meets the specifications for enzyme preparation laid down by the Joint FAO/WHO Expert Committee on Food Additives and the Food Chemicals Codex.

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. Chymostar® is Generally Recognized As Safe (GRAS) in the United States for use in dairy applications.

Safety and handling

Enzymes are proteins. Enzyme exposure may cause respiratory allergy upon repeated exposure, use enzyme products under ventilation and/or closed processes. Respiratory protective equipment is recommended during open applications. Refer to the safety data sheet (SDS) or contact DuPont for more information on enzyme safety and handling practices.

Kosher status

Chymostar® is certified kosher by the OU kosher certification.

Modern Biotechnology

The enzymes are manufactured by fermentation of microorganisms that are not present in the final product. The microorganisms have been optimized by means of modern biotechnology. This product does not contain genetically engineered material from the microorganisms.

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Allergens

The table below indicates the presence (as added component) of the following allergens and products thereof.* Unless otherwise noted, the following listed allergens and products thereof have been used in the fermentation or recovery processes, or in the formulation of an enzyme product:

Yes	No	Allergens	Description of components
	(X)	Wheat	Glucose (used in fermentation)**
	X	Other cereals containing gluten	
	X	Crustaceans	
	X	Eggs	
	X	Fish	
	X	Peanuts	
	X	Soybeans	
	X	Milk (incl. lactose)	
	X	Nuts includes : Almond, Hazelnut, Cashew-nut, Brazilian-nut, Macadamia, Walnuts, Pecan, Pistachio, Pinoli and Chestnuts	
	X	Celery	
	X	Mustard	
	X	Sulphur dioxide and sulphites (>10 mg/kg)	
	X	Lupin	
	X	Molluscs	
	X	Natural Latex	

*Local legislation has always to be consulted as allergen labeling requirements may vary from country to country. ** Based on risk assessments, DuPont Industrial Biosciences concludes that the amount of soybean or wheat proteins or protein fragments in the final food product to be de minimis and not likely to pose a risk to the final consumer.

https://amfep.org/_library/_files/amfep-statement-on-labelling-of-substances-capable-of-causing-allergies-or-intolerances-present-in-food-enzyme-preparations.pdf