

PRODUCT DESCRIPTION - PD 204920-11.0EN

Material no. 17460

Marzyme® 15, 25 I

Liquid Microbial Rennet

Description

Marzyme® is an enzyme produced by the fermentation of a purified culture of the fungal specie *Rhizomucor miehei*.

Marzyme® belongs to the group of coagulants of microbial origin.

Marzyme® is used in cheesemaking as an alternative to animal extract coagulants.

Directions for use

Conditions depend of the technology used and on the desired end product characteristics. The rennet has a double action in the cheese making process:

* Hydrolysis of the Kappa casein which gives clotting of the milk,

* Proteolytic activity during the ripening of the cheese.

The data below gives a general guideline as to the average quantities used for 100 litres of milk:

Acidified fresh cheese:	300 - 900 IMCU
Matured lactic curd:	1000 - 1800 IMCU
Semi-hard cheese:	2600 - 3300 IMCU
Stabilised semi-hard cheese, uncooked pressed cheese:	3600 - 5200 IMCU
Cooked pressed cheese: Cheddar and Italian semi-hard cheese:	2900 - 5200 IMCU 5100 - 5900 IMCU

We do not accept any liability in case of undue application.

Composition

Protease (origin *Rhizomucor miehei*)
Sodium chloride
Sodium benzoate (E211)

Properties

Specific proteolytic activity on the Kappa casein. Coagulum formation.

Action on the ripening of the curd during the transformation into cheese. The recommended manufacturing parameters for the use of Marzyme® (initial gelling time, coagulation time, curd cutting, etc..) are very similar to those obtained when using rennet.

Physical/chemical specifications

Physical Properties:

- pH at 20°C (AFNOR standard NF T01.013)	5.00 - 5.35
- Density at 20°C (internal method)	1.120 - 1.150
- NaCl (density Marschall method)	< 20 % *
- Preservative agent	Sodium benzoate (E211) *
- Sodium benzoate maximum concentration	<= 0.5 % w/w *
- Lipase (Food Chemical CODEX IV method)	< 0.2 LFU / 100 IMCU *
- Alpha-Amylase (Ceralpha method)	< 0.05 CU / 100 IMCU *

*: The compliance to this specification is monitored through periodic testing based on a defined sampling plan. This parameter is not listed on our certificate of analysis.

Biochemical specifications:

- Clotting activity (ISO 15174: 2002):	217 - 226 IMCU/ml **
- <i>Rhizomucor miehei</i> protease concentration:	>= 3000 mg/l

** : At the date of quality control release.

Thermolabile specification: pasteurisation of the whey from cheesemaking causes significant inactivation of the Marzyme®. Thus, residual activity after pasteurising for 20 seconds (pH 6.00 at 68°C) is less than 2% of initial activity.

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Microbiological specifications

aerobic mesophilic total count	< 1000 / ml [12]
Coliforms	< 1 / ml [13]
anaerobic sulphite reducing spore	< 1 / ml [9]
anaerobic gas producing spore	< 1 / ml [10]
Yeasts	< 10 / ml [14]
Moulds	< 10 / ml [14]
Staphylococci coagulase positive	neg. / ml [15]
Salmonella	neg. / 25 ml [16]
Listeria monocytogenes	neg. / 25 ml [17]

[12] ISO 4833 - 2003

[13] NF ISO 4832 - 2006

[9] Spore activation Meat/Liver/Agar 10 min at 80 °C

[10] Spore activation Milk + Paraffin medium 10 min at 80 °C

[14] ISO 6611 : 2004

[15] NF EN ISO 6888-1 - 1999

[16] NF EN ISO 6579 - 2002

[17] NF EN ISO 11290-1 - 1996

Storage

Store in the original packaging in a cool, dry and dark area.

Shelf life: 18 months from production date, at a temperature between 0 °C and 7 °C.

During storage, the loss of enzymatic activity has been estimated to 1% maximum per month.

Packaging

This product is packaged in a food grade plastic jerrican.

The following information appears on the labelling of products: manufacturer name, product name, net volume and net weight, batch n° and shelf life.

Quantity

Unit pack: pallet (80 x 120) containing 28 jerricans (700 litres).

Purity and legal status

Marzyme® 15, 25 I complies with all EU food legislations.

Marzyme® complies with the recommendations of the Food Chemical Codex IV for food grade enzymes. Other local regulations should always be consulted concerning the status of this product, as legislation regarding its use in food may vary from country to country.

Safety and handling

SDS available on request

Allergens

Below table indicates the presence of the following allergens and products thereof:

Yes	No	Allergens	Description of components
	X	wheat	
	X	other cereals containing gluten	
	X	crustaceans	
	X	eggs	
	X	fish	
	X	peanuts	
	X	soybeans	
	X	milk (including lactose)	
	X	nuts	
	X	celery	
	X	mustard	
	X	sesame seeds	
	X	sulphur dioxide and sulphites (> 10 mg/kg)	
	X	lupin	
	X	molluscs	

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Additional information

Certification:

ISO 9001

Kosher status: OU certified.

Halal status: Halal certified.

The values indicated in this document correspond to results from standardized laboratory tests. They should be considered as guidelines. In practice other values are expected depending on the type of product and technology. Due to advances in technology and continuous product improvement it may be necessary to change standard values in the future.

GMO status

Marzyme® 15, 25 I does not consist of, nor contains, nor is produced from genetically modified organisms according to the definitions of Regulation (EC) 1829/2003 and Regulation (EC) 1830/2003 of the European Parliament and of the Council of 22 September 2003.