

PRODUCT DEFINITION:

What is natamycin?

Natamycin (Pimaricin) is an antimycotic food additive used to protect cheese from mold fungi and yeast growth. Also known as Natamycine, Natamycina, Натамицин(пимарицин), Pimaricine, Pimaricina is assigned to be the number E-235 natural preservative in European Union.

When was Natamycin found?

Natamycin (Pimaricin) is an antifungal which was first isolated in 1955 from *Streptomyces natalensis* (a micro organism found in a soil sample from State of Natal, South Africa).

How does natamycin work?

Natamycin binds to and alters the fungal cell membrane so that vital structures inside the cell pass through the membrane and out of the cell. Without these structures, the fungal cells cannot survive.

BENEFITS:

- Low dose and more effective than chemical preservatives.
- Not digestible by human and animal body
- Enhance the quality of food product, and significantly extend the shelf life of foods by preventing yeast, fungi and mould spoilage.
- Reducing the risk of mycotoxin growth and provides longer shelf life.
- Reduce product being recalled resulting from spoilage (and reduces manufacturing costs)
- Replace or partial replace chemical preservatives and meet consumer demand for food preserved with natural ingredients.
- Have no adverse flavour to foods (unlike sorbic acid which can impart a bitter taste) and have stronger inhibibility compared to sorbic acid.
- It will not effect the appearance, flavor, aroma, or color of food applications.
- It has no effect on desirable culture activity in fermented products or on bacteria.

APPLICATION :

- Cheese, surface treatment for cheeses
- Baked food
- Meat, Jam, Jelly, Marinated food, Fish, Chicken
- Surface treatment for semi-dried, cured meat products
- Drinks , Juice , Wines
- Yogurts , man-made butter
- Miscellaneous

USAGE LEVELS:

Natamycin may be applied to cheese by dipping or by spraying a liquid solution that contains 200 to 300 parts per million (ppm) of the additive.

Exact dosage cannot be stated as it depends on the nature of the product for which it is intended. Please contact us for further applications.

The stability between different pH is as follow:

- pH 5.0 - 7.0 No activity loss
- pH 3.0 - 5.0 10% activity loss
- pH <3.0 or PH >9.0 30% activity loss

METHOD OF PRODUCTION:

Natamycin is made from *streptomyces natalensis* through deep fermenting and complicated extracting process. Natamycin product is usually made of 50% Natamycin mixed with lactose or glucose.

CHARACTERISTICS:

Natamycin Molecular formula: $C_{39}H_{47}NO_{13}$

Natamycin Molecular weight: 665.74

Appearance: White to yellow crystalline powder. No taste and almost odourless.

Solubility and stability: Have low solubility in water, higher alcohols, aether and ester, slightly soluble in methanol, completely soluble in glacial acetic acid and dimethylsulfoxide;

Melting point: 280 °C (decomposed);

Sensitive to oxidant and ultraviolet radiation

PACKING:

100 gr, 500 gr plastic jars.

STORAGE CONDITIONS:

Store in the airtight and dark place for not more than 2 years at below 10°C. in original unopened packs.

COMPOSITION:

Pimaripro is composed of:

Natamycin (E 235) min. 50%

Lactose max.50%

All percentages are by weight.



SENSITIVITY OF ORGANISMS TO NATAMYCIN:

YEASTS:	MIC(Ug/MI)	FUNGI:	MIC(Ug/MI)
Brettanomyces bruxellensis	1.50	Aspergillus chevalieri 4298	0.63
Candida albicans	1.50-2.00	Aspergillus clavatus	0.10-0.20
Candida guilliermondii	3.00	Aspergillus flavus CBS3005	6.00
Candida vini	1.00	Aspergillus flavus BB67	4.50
Hansenia polymorpha	1.00	Aspergillus flavus (Madagascar)	5.00
Kloeckera apiculata	3.00	Aspergillus flavus (Port Lamy)	5.00
Saccharomyces bailii	1.00	Aspergillus nidulans	1.00
Saccharomyces bayanus	1.00	Aspergillus niger	1.00
Saccharomyces cerevisiae 8021	2.50	Aspergillus ochraceus 4069	2.50
Saccharomyces cerevisiae var ellipsoideus	2.50	Aspergillus oryzae	10.00
Saccharomyces exiguus	2.50	Botrytis cinerea	1.00-2.00
Saccharomyces ludwigii 0339	2.50	Fusarium spp	10.00
Saccharomyces rouxii 0562	5.00	Gloeosporium album	2.50
Saccharomyces sake 0305	5.00	Mucor mucedo	1.20-5.00
Torulopsis candida	2.00	Penicillium chrysogenum	0.60-1.00
Torulopsis lactis var condensii	3.00	Penicillium digitatum	2.50
		Penicillium expansum	5.00
		Penicillium islandicum	1.10
		Penicillium notatum 4640	5.00
		Penicillium roqueforti var. punctatum	10.00
		Rhizopus oryzae 4758	10.00

SAFETY AND HANDLING:

A Material Health and Safety Data Sheet is available on request.

TYPICAL DOSAGES OF PIMARIPRO:

Application	Pimaripro	Method
Yogurt	10-20 mg/Kg.	Add to yogurt mix
Processed cheese	20 mg/Kg.	Add prior to mixing
Hard/semi-hard cheese	2.5-4 g./litre	Coat or dip in a solution made with e.g. distilled water
Meat slices/sausages	2.5-4 g./litre	Spray or dip with a solution made with e.g. distilled water
Bakery products	2.5-4 g./litre	Spray with a solution made with e.g. distilled water
Tomato purée /paste	15 mg./Kg.	Add during mixing

Pimaripro Ltd.

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