

Natamycin Specification Sheet

1. Description

Natamycin is an antimycotic of the polyene macrolide group. It is produced by the species of Streptomyces and multistep extracted.

NataPro™ is the brand of Natamycin of produced by ChiHonBio.

NataPro™ L50 is the brand of Natamycin Min. 50% in Lactose.

Synonyms: Pimaricin

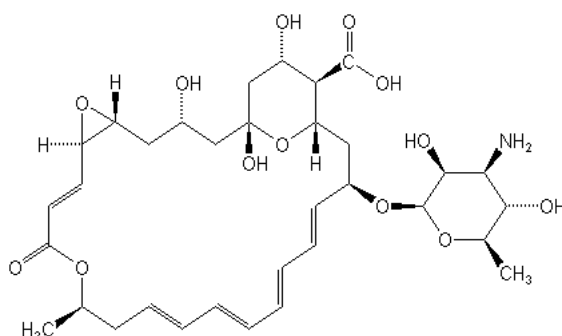
CAS No. 7681-93-8,

INS: 235,

EEC No. E235

Formula: C₃₃H₄₇NO₁₃

Structure:



2. Application areas

NataPro™ is effective in a variety of food products across a wide range of pH levels(3.5-9.5). It is currently approved by the FDA for use on the surface of cuts and slices

of cheese where the standards for such cheese provides for the use of safe and suitable mold inhibiting ingredients.

FDA,72.155, 1994. spraying 200-300mg/kg water solution on the surface of the cheese slice.

CAC approved the application areas and dosage as follow:

Function: preservative

Food Cat. No.	Food Category	Max Level
01.6	Cheese and analogues	40 mg/kg
08.2.1.2	Cured (including salted) and dried non-heat treated processed meat, poultry, and game products in whole pieces or cuts	6 mg/kg
08.3.1.2	Cured (including salted) and dried non-heat treated processed comminuted meat, poultry, and game products	20 mg/kg

GB2760-2007: the surface of cheese, process meat food, sausage, pastry, salad, brewed wine, juice, and various food processing devices. The max. dosage is 300ppm, Residual less than 10mg/kg

3. Potential benefits

Natamycin are effective anti-microbial agents. Using Natamycin as food preservatives

can:

- Enhance the quality of food product, and significantly extend the shelf life of foods by preventing yeast and mould spoilage.
- Reduce product being recalled resulting from spoilage.
- Have no adverse flavour to foods.
- Prevent formation of potentially carcinogenic mycotoxins.
- Cover a very broad spectrum of activity -- most yeasts and moulds are sensitive to very low levels of the preservative (<1 - 20 ppm).
- Do not act against bacteria .This makes it useful for food products such as cheese and dry sausages in which bacteria are key to the ripening process.
- Remain on food surface for a long time where contamination usually occurs.
- Be proven to be a safe antimycotic agent.

4. Usage levels

The recommended dosage of Natamycin is in the range 20-300mg per kg or litre of food.

Residual less than 10mg/kg.

5. Directions for use

Natamycin soluted in water or alcohol at pH=3-4, spray on the surface of food or dip the food.

6. Composition

NataPro™ Is composed of:



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China.

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Natamycin min. 90%

Water max. 8%

All percentages are by weight.

7. Physical/chemical specifications

NataPro™

Appearance White to off white. No taste

Assay(On anhydrous base) $\geq 95\%$

Water $\leq 8\%$

PH 5.0—7.5

8. Microbiological specifications

Total Plate Count $\leq 100\text{CFU/G Max.}$

E. Coli Negative In 25g

Salmonella Negative In 25g

Listeria monocyt Negative In 25g

9. Heavy metal specifications

Ash. $\leq 0.5\%$

Heavy metals $\leq 10\text{PPM}$

Lead (Pb) $\leq 2\text{PPM}$

Arsenic (As) ≤ 2 PPM

Mercury (Hg) ≤ 1 PPM

10. Nutritional data In 100g products

energy (kcal), 0Kcal

Protein (g) ≤ 0.5

Glucose (g) 0

Fructose (g) 0

Sucrose (g) 0

Dietary Fiber (g) 0

Fat (g) 0

Saturated Fat (g) 0

Sodium (mg) ≤ 3.2

Moisture (g) ≤ 8

Vitamin C (g) 0

Potassium (mg) ≤ 2

Calcium (mg) ≤ 1.5

Zinc (mg) 0

Chloride (mg) ≤ 1.8

Magnesium (mg) ≤ 1.5

Pantothenic Acid (mg) 0

11. Effect of Natamycin anti mold and yeast

Table 1. Minimal inhibitory concentrations (MICs) of natamycin when tested in vitro against fungal isolates

Organism	Mean ($\mu\text{g/ml}$)	Range ($\mu\text{g/ ml}$)
<i>Candida albicans</i>	3.3	1.6–4.7
<i>Candida parapsilosis</i>	5.2	4.7–6.2
<i>Candida krusei</i>	1.6	1.6
<i>Rhodotorula spp.</i>	2.3	2.3
<i>Fusarium solani</i>	4.2	3.1–6.2
<i>Aspergillus fumigatus</i>	3.1	3.1
<i>Aspergillus niger</i>	2.3	1.6–3.1
<i>Penicillium spp.</i>	2.3	2.3
<i>Penicillium lilacinus</i>	9.4	9.4
<i>Rhizopus spp.</i>	9.4	6.2–12
<i>Scopulariopsis brevicaulis</i>	3.1	3.1

Table. 2 Induction of tolerance to natamycin of moulds isolated from cheese warehouses

Strain	MIC of natamycin ($\mu\text{g/ml}$)
<i>Penicillium viridicatum Westling</i>	8

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<i>Penicillium chrysogenum Westling</i>	2
<i>Aspergillus versicolor (Vuill.) Tiraboschi</i>	4
<i>Penicillium viridicatum Westling</i>	8
<i>Cladosporium cladosporioides (Fres.) de Vr.</i>	2
<i>Aspergillus versicolor (Vuill.) Tiraboschi</i>	4
<i>Penicillium verrucosum Dierckx var. cyclopium</i> <i>(Westling)</i>	2
<i>Aspergillus versicolor (Vuill.) Tiraboschi</i>	2
<i>Penicillium viridicatum Westling</i>	6
<i>Penicillium verrucosum Dierckx var. cyclopium</i> <i>(Westling)</i>	2
<i>Penicillium verrucosum Dierckx var. cyclopium</i> <i>(Westling)</i>	2
<i>Cladosporium cladosporioides (Fres.) de Vr.</i>	2
<i>Penicillium citreo-viride Biourge</i>	4
<i>Penicillium verrucosum Dierckx var. cyclopium</i> <i>(Westling)</i>	4
<i>Penicillium brevi-compactum Dierckx</i>	4
<i>Beauveria alba (Limber) Saccas</i>	8
<i>Penicillium roseo-purpureum Dierckx</i>	8
<i>Scopulariopsis asperula</i>	8

<i>Penicillium cf. lividum</i> Westling	4
<i>Aspergillus versicolor</i> (Vuill.) Tiraboschi	4
<i>Acromonium sclerotigenum</i>	8
<i>Penicillium viridicatum</i> Westling	8
<i>Penicillium viridicatum</i> Westling	8
<i>Penicillium nigricans</i> (Bain.) Thom	4
<i>Aspergillus versicolor</i> (Vuill.) Tiraboschi	2

12. Storage Condition:

Store unopened between 4-22°C in dry conditions, away from direct sunlight.

When opened, store between 4-20°C in original container in dry conditions, away from direct sunlight. Shelf life is 24 months when stored according to recommendations.

12. Packaging

NataPro™ is available in 1.0kg Aluminum tin with integral, tamper-proof seals.

13. Purity and legal status

Natamycin is food grade and meets FAO/WHO, EU and Food Chemicals Codex specifications and complies with the USA Code of Federal Regulations. The regulations governing the use of Natamycin vary considerably in the countries in



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which it is currently approved. Local food and/or feed regulations should always be consulted concerning the status of this product, as legislation regarding its use in food or feed may vary from country to county. Advice regarding the legal status of this product is available on request.

14. Safety and handling

A Material Safety Data Sheet (MSDS) is available on request.

15. County of origin

China

16. Kosher status

This product is certified by the Star-K in American.

17. Halal status

This product is certified Halal by MUI in Indonesia.

18. ISO Status

This product is certified by the ETC QingDao, China.

19. HACCP Status

This product is certified by the ETC QingDao, China



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20. Manufacturer Information

Manufacturer: ChiHon Biotechnology Co., Ltd.

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