

The Largest Supplier of NISIN, Natamycin & e-Polylysine in India.



Bimal Pharma Pvt. Ltd.

ISO 9001 : 2015 & AEO T1 certified company

FSSAI LICENSE NO. : 10012022000599



Cert. No.: 110661/A/0001/UK/En

Indian Hub for Natural Bio Preservatives for Foods

e- POLYLYSINE (100 % A Grade, White)

(US GRAS No. : 000135)

Pioneered in Japan, available in US & Korea since 20 Years &

Now Available In India.

Polylysine is a Polymer of the Amino Acid, L-Lysine.

Polylysine is a Natural Broad - Spectrum Antimicrobial .

Used in Foods, Daily Chemicals, Cosmetics, Pharmaceuticals.

Also used as a Better Cleaning & Disinfecting Agent in Food Machinery & Containers.

➤ **Specification**

- CAS No. : 28211-04-3
- Milky Yellow to White Powder.
- Soluble in Water.
- Purity : 98 0% to 99.0%
- Moisture , 4% Max
- Heavy Metals, 4PPM Max.
- pH, 4.0 To 6.5

Packing :

250 Gms / 500 Gms / 1000 Gms
Aluminium Foil / Plastic Jar

Shelf Life : 2 Years

Storage : Under Cool (0C° - 20°C) & Dry Condition. Away From Direct Sunlight.



Key Benefits of E- Polylysine

- **Natural Bio - Preservative**, product of Bacterial Fermentation.
- **Broad Powerful Antibacterial Spectrum** works against Gram- positive and Gram - negative Bacteria, Yeast & Moulds, Viruses and many other Micro-Organisms.
- **GRAS** for most food applications & Minimal effect on Taste and Odor.
- **Excellent Synergistic Effect : (Strong Blends)** As a Natural preservative, e-Polylysine can be used alone. In addition, it has good synergistic effects when blending with other food additives (NISIN, Natamycin, Vinegar, Alcohol, Glycine, Organic Acid, EDTA, Monoglycerides etc.). After blending, its bactericidal action will be greatly improved. (opportunities for cost averaging)
- **Excellent Thermal Stability** (Heat / Cold Stability) under high temperature (121°C for 30min), e-polylysine does not decompose, so it is suitable for cooked food.
- **Works well in Wide pH Range** : Under the condition of pH 2-9, e-polylysine has strong bactericidal ability, it can make up for the deficiencies that other Preservatives have low activity in Neutral and Alkaline conditions.
- **Long track record** of product use and safety. (more than 20 years in Japan and Korea)
- **High safety:** the Acute Toxicity Test of e-Polylysine (LD50) is 5 gm / kg which is equivalent to the Toxicity of salt. After eating, it can be broken down into L-lysine, one of the essential Amino Acids for human health and can be absorbed by the human body, without any Toxic and Side Effects.
- **Good water-solubility:** e-polylysine is easily soluble in water, the maximum solubility is 500 gms / Lit. at least.
- **Health Care Function** : Studies have shown that e-polylysine can effectively inhibit enzyme activity and fat absorption which in turn reduce the Obesity.

Effect of Temp. on the Activity of e Polylysine

Temp. & Duration	MIC (mg/Ltr)
Untreated (Room Temp.)	50
80°C, for 60 min.	50
100 °C, for 30 min	50
120 °C, for 20 min	50

Effect of pH on the Activity of e Polylysine

Bacteria for Test	MIC (mg/Ltr)			
	pH 5.0	pH 6.0	pH 7.0	pH 8.0
Bacillus Subtilis	3.0	3.0	3.0	3.0
Bacillus Cereus	25.0	100.0	50.0	12.5
Escherichia Coli	25.0	25.0	50.0	50.0
Staphylococcus Aureus	12.5	25.0	12.5	< 6.3

➤ Survey Questions

Q. What is polylysine and how does it Perform ?

A. Polylysine is simply a chain of Lysine Molecules produced by Fermentation. This chain of Lysine has a strong charge that attracts it to Mold, Yeasts & Bacteria, attacking these microbes and knocking them out.

Q. How safe is Polylysine ?

A. Polylysine is 100% Natural and extremely safe – safer than the salt on your dinner table (LD50 for Polylysine is more than 5 gm. / kg vs. 4 gm. / kg for NaCl). It's GRAS by the US FDA for a wide variety of applications and approved for use in food in Japan, in Korea, where it's been used for over 20 years.

Q. How much dosage do I need in Application ?

A. It varies based on your application, condition, and your expectations, but generally 20ppm - 250ppm is recommended. In some applications, Polylysine works best in combination with other Preservatives. Pls. contact us for your specific Application.

Q. How can Polylysine be labeled ?

A. Simply "Polylysine". You can also label it as "polylysine (a Natural Preservative)".

Q. What is the benefit of Polylysine ?

A. Polylysine is unique in that it's Natural and works where others don't – on Pathogens, Mold and Yeast. All this and it's virtually flavorless and odorless – providing the extra "bump" you need to your existing preservative system or replacing it altogether.

Q. Where does Polylysine work best ?

A. 20 years of working carefully with our customers tell us that Polylysine works best with moist foods of Neutral to higher pH and higher Temperature (that's right, HIGHER pH and temperature are **NO PROBLEM** for Polylysine). Polylysine can be refrigerated, frozen, boiled, baked and gets right to work when it needs to.

Q. What are the Certificates of Polylysine ?

A. Yes. Polylysine is Halal & Kosher Certified. And produced in the Facilities certified as per ISO 22000 & ISO 9001.

➤ Most Safe & Natural Food Additive Preservatives For Beverages

If combined with Natamycin, Shelf Life is extended to 9 Months / 12 Months .

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E - Polylysine in Beer

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E- Polylysine in Fruit Juice

➤ Common Usage Level of Polylysine In Typical Foods

	Food Type	Recommend Usage
Cooked product	Sausages	100—250 mg / kg
	Ham (Pig Meat)	100—250 mg / kg
	Red-Cooked Meat	200—400 mg / kg (surface treatment)
Fresh Meat	Cold Fresh	200—400 mg / kg (surface treatment)
	Frozen Meat	200—400 mg / kg (surface treatment)
Rice	Cooked Rice	100—200 mg / kg
Beverages	Pure Water	50—100 mg / L
	Fruit Juices And Fruit Flavored Drinks	100—200 mg / L
	Protein Beverage (Energy & Sport Drinks)	100—200 mg / L
	Water-Based Seasonings Drinks	100—200 mg / L
	Tea, Coffee, Herbal Drink	100—200 mg / L
	Beer	100—200 mg / L
Seafood	Fresh Aquatic Product	200—400 mg / kg (surface treatment)
	Frozen Seafood And Product	200—400 mg / kg (surface treatment)
	Prefabrication Of Aquatic Products	150—300 mg / kg
	Cooked Aquatic Products (Fish Etc.)	150—300 mg / kg
Bakery	Bread	100—200 mg / kg
	Asian Pastry	150—250 mg / kg
Prepared Foods	Dips, Sauces, Salad Dressings	50—100 mg / kg
	Pasta And Noodles	50—200 mg / kg

Approval and Regulations

ϵ -Polylysine is food grade and meets FAO / WHO specifications It is certified as GRAS (**Generally Recognized As Safe**) by the US FDA with US GRAS No.: GRN000135, Currently, ϵ -Polylysine has approval as a food additive in Korea, Japan USA and some more countries.

Applications in

- Foods
- Cosmetics
- Daily Chemical Products
- Medical Products

Foods

- Nutrient water



Safe for 1 Year



Boiled Rice
Safe for 10 Days

➤ Starters

- Vegetables
- Soup
- Tortillas
- Steamed Buns
- Rice
- Noodles



Safe for 40 / 45 Days



Tortillas (Roti)



• Main Courses

- Pasta
- Fried Noodles
- Sushi
- Steaks
- Fish



Safe for 4 days



Safe for 48 Hrs.



Safe for 48 Hrs.

➤ Desserts

- Mousse
- Doughnuts



Daily Chemical Products

- Toothpaste
- Mouthwash
- Soap
- Hand Washing
- Wet Wipes
- Baby Diapers
- Sanitary Napkins
- Kitchen Detergent.



Soap



Toothpaste



Handwash

➤ In Cosmetics Products

- Cosmetics are very easily deteriorated due to microbial contamination in the process of Production, Storage and Using. Spoiled cosmetics are especially harmful to human skin. E-Polylysine has Broad Antibacterial Spectrum and it can effectively inhibit the growth of Microbes & ensure the good Quality of Cosmetics.
- Various Functions : E-polylysine molecules are cationic, surface active agents in water due to their positively charged Amino Groups. This property imparts many benefits when used as an Ingredient in Cosmetics & is **acting as Preservative and Surfactant**.
- Since E –polylysine is a polymer of Amino Acids, to be known as **Nutritional Preservative**, so it is much more **Environmentally-Friendly, safe and efficient**.

➤ Application : In Skin Care (Emulsions) & Lotions



Skin Care Emulsions



Skin Care Lotion



Wet Napkins

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