

EPOLYLY®

Ultrapure ϵ -Polylysine



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Key benefits

- Growth inhibition of fungi, Gram-positive and Gram-negative bacteria
- Increased safe by minimizing chloride and inorganic contents
- Shelf life extension
- Natural, consumer-friendly labeling

THE BEST BROAD-SPECTRUM ANTIMICROBIAL POLYMER

With the consumer trend toward natural products still going strong, food manufacturers have focused their efforts in searching for ingredient names that are known and trusted by consumers. ϵ -Polylysine has been accepted as food antimicrobial of natural origin and it is acknowledged as label-friendly.

Handary provides two different types of bacterial-fermentation ultrapure ϵ -Polylysine, one is Epolyly™ ϵ -Poly-L-lysine that is prepared from a submerged aerobic fermentation of *Streptomyces albulus* PD-1, and another is Epolyly™ ϵ -Poly-L-lysine HCL that is from controlled fermentation of *Streptomyces diastatochromogenes*. Both have a similar antimicrobial activities in food applications.

Brands



EPOLYLY®
 ϵ -Polylysine



EPOLYLY® HCL
 ϵ -Poly-L-lysine HCL



Table 1 Applications

Food categories		Applications	Cases	Epolyly™	Epolyly™ HCL	Benefits
Culinary	Ready-to-eat meals		Ready-to-eat rice (meat, vegetable, sauce)		0.5ml/kg	Inhibition of TPC (e.g. <i>B. cereus</i> , <i>P. roquefortii</i> , <i>Pseudomonas lundensis</i>)
			Fresh pasta		0.48ml/kg	Inhibition of TPC (e.g. <i>Bacillus</i> , <i>A. flavus</i> , <i>Penicillium</i> , <i>salmonella</i>)
			Refrigerated cooked noodles		0.8mg/kg	Inhibition of LAB, <i>Salmonella</i>
	Soya-based products		Dried stewed Tofu		0.36/kg	Inhibition of TPC (e.g. Fungi, LAB, <i>Salmonella</i>)
			Low-salt soy sauce		0.15ml/kg	Inhibition of TPC (e.g. LAB, <i>S. aureus</i> , <i>B. subtilis</i> , <i>S. cerevisiae</i> and <i>Mucor</i>)
Meat, poultry and seafood	Raw meat		Fresh meat		0.8ml/kg	Inhibition of TPC (e.g. LAB, <i>Salmonellae</i> , <i>Broch. Thermosphacta</i>)
			Fresh sausage		0.48ml/kg	Inhibition of TPC (e.g. LAB, <i>Salmonellae</i> , <i>Broch. Thermosphacta</i>)
	Cooked meat		Prepared meat-based meals		0.1ml/kg	Inhibition of LAB, <i>Bacilli</i> , <i>Salmonellae</i>
			Roast beef		0.8ml/kg	Inhibition of LAB, <i>Salmonellae</i>
			Sliced cooked meats		0.8ml/kg	Inhibition of TPC (e.g. LAB, <i>Clostridia</i> , <i>Broch. Thermosphacta</i> , <i>Pseudomonads</i> , <i>Salmonellae</i>)
	Cooked poultry		Cooked chicken		0.4ml/kg	Inhibition of TPC (e.g. LAB, <i>Listeria</i> , <i>Clostridium perfringens</i> and <i>Salmonella</i>)
	Cooked fish		Surimi		0.1ml/kg	Inhibition of TPC (e.g. <i>Bacillus</i> , <i>Pseudomonas</i> , <i>S. aureus</i> and <i>E. coli</i>)

RTE rice (Meat, vegetable and sauce)

Rice once cooked is perishable. Spoilage organisms, such as Gram-positive bacteria (e.g. *B. cereus*), molds (e.g. *P. roquefortii*) and Gram-negative bacteria (e.g. *P. lundensis*) are naturally abundant. Figure 1 shows that Epolyly® has a high efficacy against these bacteria for longer shelf life of cooked rice at 5°C.

Total plate count

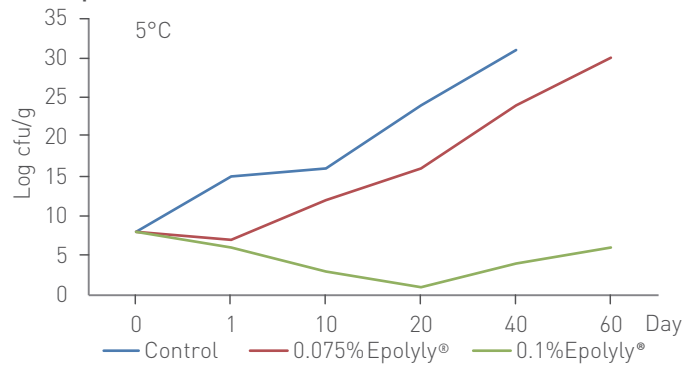


Figure 1

Soy sauce

Low-salt soy sauce are susceptible to harmful microorganism such as Gram-positive bacteria (e.g. LAB, *S.aureus* and *B. subtilis*), yeasts (e.g. *S.cerevisiae*) and mucor. Figure 2 illustrates the addition of 0.1-0.15% Epolyly® HCL in low-salt soy sauce, the total count can be significantly inhibited up to 240 days at 15°C.

Total plate count

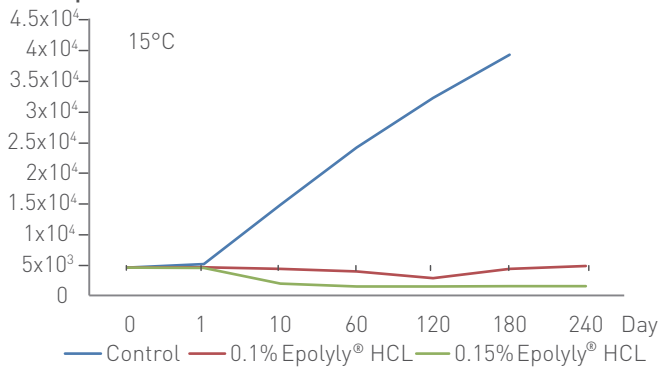


Figure 2

Surimi

Surimi products are mainly spoiled from spore-forming bacteria and turning yellowish with bad smell, figure 3 shows that 0.15% Epolyly® HCL was added in Surimi that can reduce the population of total bacteria, and the shelf life was extended to 6 days, while the control was only 2 days, stored at 5°C.

Total plate count

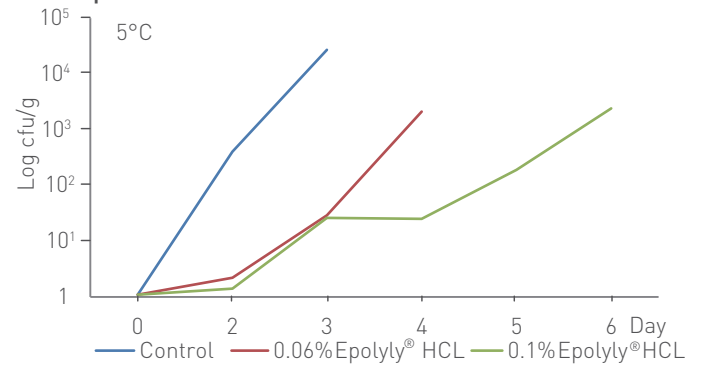


Figure 3