

# **E-Polylysine Market By Source (Natural, Synthetic) , By Form (Powder, Liquid) By Application (Food and Beverages, Pharmaceuticals, Cosmetics and Personal Care, Others) : Global Opportunity Analysis and Industry Forecast, 2024-2033**

<https://marketpublishers.com/r/EC2A86EBDE6BEN.html>

Date: November 2024

Pages: 215

Price: US\$ 2,439.00 (Single User License)

ID: EC2A86EBDE6BEN

## **Abstracts**

The e-polylysine market was valued at \$7.3 billion in 2023, and is projected to reach \$11.6 billion by 2033, growing at a CAGR of 4.8% from 2024 to 2033.

E-polylysine is a naturally occurring, biodegradable, and cationic polypeptide composed of lysine residues linked by epsilon-amino groups. It is primarily produced through fermentation by strains of *Streptomyces*. Known for its antimicrobial properties, e-polylysine is widely used as a natural preservative in the food, pharmaceutical, and cosmetic industries due to its effectiveness against a broad range of microorganisms.

The growth of the global e-polylysine market is driven by rise in demand for natural food preservatives. This is attributed to the fact that e-polylysine is a safe, natural preservative used in food & beverages, which extend shelf life without compromising quality, thus aligning with consumer trends toward healthier eating. For instance, a 2022 study published by the MDPI—one of the largest publishers of peer-reviewed, open access journals—e-polylysine can be used as a biopreservative for raw milk storage. Moreover, high effectiveness of e-polylysine against foodborne pathogens significantly fuels its demand in the food & beverages industry. In addition, implementation of stringent food safety regulations and rise in concerns over foodborne illnesses have spurred the adoption of effective antimicrobial agents like e-polylysine in food processing and packaging. According to the World Health Organization, unsafe food causes approximately 600 million cases of foodborne diseases and 420,000 deaths every year. This highlights the urgent need for natural preservatives such as e-

polylysine. Furthermore, multifunctional properties of e-polylysine, including antimicrobial activity and biodegradability, have led to its increasing incorporation in cosmetics and pharmaceutical formulations, which augments the market growth. However, the fermentation-based production of e-polylysine is resource-intensive and requires sophisticated facilities, making it costlier compared to synthetic preservatives. This cost disadvantage limits its adoption in cost-sensitive markets. In addition, availability of other natural antimicrobials, such as nisin and natamycin, restrains the market growth. On the contrary, innovations in fermentation technology have improved the cost-effectiveness and scalability of e-polylysine production, making it more accessible to manufacturers. Such developments are expected to offer lucrative opportunities for the expansion of the global market during the forecast period.

The global e-polylysine market has been segmented into source, form, application, and region. On the basis of nature, the e-polylysine market is bifurcated into natural and synthetic. Depending on form, it is categorized into powder and liquid. By application, it is fragmented into food & beverages, pharmaceuticals, cosmetics & personal care, and others. Region wise, the market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

### Key Findings

By source, the synthetic segment held the major share of the market in 2023; however, the natural segment is projected to register the highest CAGR from 2024 to 2033.

On the basis of form, the powder segment was the major shareholder in 2023; however, the liquid segment is anticipated to grow at a notable CAGR during the forecast period.

Depending on application, the food & beverages segment garnered the largest share in 2023; however, the cosmetics & personal care segment is expected to register the highest CAGR in the coming years.

Region wise, Europe was the major revenue generator in 2023, and is expected to continue the same trend in the near future.

### Competition Analysis

Competitive analysis and profiles of the major players in the global e-polylysine market include Ajinomoto Co., Inc., Kemin Industries, Inc., Shin-Etsu Chemical Co., Ltd., Jiangsu Boli Bioproducts Co., Ltd., Hangzhou Focus Chemical Co., Ltd., Ginkgo

BioWorks, Inc., Nihon Shokuhin Kako Co., Ltd., Sichuan Deebio Pharmaceutical Co., Ltd., Jinan Haoyuan Bio-Tech Co., Ltd., Shaanxi Xindongfa Biological Technology Co., Ltd. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships to sustain the intense competition and gain a strong foothold in the global market.

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Brands Share Analysis

Criss-cross segment analysis- market size and forecast

Expanded list for Company Profiles

Historic market data

Import Export Analysis/Data

Key player details (including location, contact details, supplier/vendor network etc. in excel format)

List of customers/consumers/raw material suppliers- value chain analysis

Market share analysis of players at global/region/country level

SWOT Analysis

Volume Market Size and Forecast

## Key Market Segments

### By Source

Natural

Synthetic

### By Form

Powder

Liquid

#### By Application

Food and Beverages

Pharmaceuticals

Cosmetics and Personal Care

Others

#### By Region

North America

U.S.

Canada

Mexico

Europe

France

Germany

Italy

Spain

UK

Russia

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Australia

Thailand

Malaysia

Indonesia

Rest of Asia-Pacific

LAMEA

Brazil

South Africa

Saudi Arabia

UAE

Argentina

Rest of LAMEA

Key Market Players

Ajinomoto Co., Inc.

Kemin Industries, Inc.

Shin-Etsu Chemical Co., Ltd.

Jiangsu Boli Bioproducts Co., Ltd.

Hangzhou Focus Chemical Co., Ltd.

Ginkgo BioWorks, Inc.

Nihon Shokuhin Kako Co., Ltd.

Sichuan Deebio Pharmaceutical Co., Ltd.

Jinan Haoyuan Bio-Tech Co., Ltd.

Shaanxi Xindongfa Biological Technology Co., Ltd

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