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# Global Bio-fermented Alanyl-Glutamine Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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## Abstracts

According to our (Global Info Research) latest study, the global Bio-fermented Alanyl-Glutamine market size was valued at US$ 102 million in 2025 and is forecast to a readjusted size of US$ 158 million by 2032 with a CAGR of 6.1% during review period.

In 2025, the global sales volume of bio-fermented Alanyl-Glutamine reached 966 metric tons, with an average price of $103.1 per kilogram.

Alanyl-Glutamine (Ala-Gln) is a dipeptide compound formed by linking alanine and glutamine via a peptide bond. As a stable derivative of glutamine, it overcomes the limitations of free glutamine?specifically its low water solubility and poor stability (free glutamine decomposes into glutamic acid or cyclizes into pyrrolidone carboxylic acid under acidic or alkaline conditions and at elevated temperatures). Offering superior water solubility and thermal stability, it serves as a commonly used "conditionally essential amino acid" supplement in clinical nutritional support.

The bio-fermentation method utilizes genetically engineered microorganisms (such as *Corynebacterium glutamicum* or *Escherichia coli*) as "cell factories." Within a fermenter, microbial metabolism converts carbon sources (e.g., glucose) into the target product. Compared to chemical synthesis and enzymatic methods, fermentation offers advantages such as mild reaction conditions, low costs, high product purity, and environmental friendliness, making it the mainstream process for industrial production.

The raw material system for bio-fermented Alanyl-Glutamine comprises four main categories: carbon sources, nitrogen sources, inorganic salts and trace elements, and growth factors. Carbon sources are the most critical raw materials in the fermentation

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process, primarily derived from the deep processing of agricultural products such as corn, soybeans, and wheat. Glucose is the most commonly used carbon source?typically prepared from corn starch?and the efficiency of its conversion directly impacts final yield and production costs. Additionally, to reduce raw material expenses, some companies are exploring the use of agricultural wastes or by-products?such as corn stover enzymatic hydrolysate, rice bran extract, and molasses?as partial substitutes for traditional carbon sources; these alternatives not only lower costs but also facilitate resource recycling. Nitrogen sources?such as soybean meal, yeast extract, fish bone hydrolysate, corn steep liquor, and ammonium sulfate?provide the essential nitrogen required for microbial growth and amino acid synthesis. Although inorganic salts and trace elements (e.g., potassium dihydrogen phosphate, magnesium sulfate, zinc carbonate, manganese sulfate, copper sulfate, iron sulfate) and growth factors (e.g., vitamin B1, biotin) are used in small quantities, they play a critical regulatory role in microbial metabolism and product synthesis, making them indispensable.

In terms of cost structure, raw materials typically account for 40%?60% of the total cost of amino acid production via fermentation, with carbon sources (glucose) and nitrogen sources representing the largest expenditures. Energy costs (steam and electricity for sterilization, temperature control, agitation, etc.) account for approximately 15%?25%; the fermentation process requires strict maintenance of temperature, pH, and dissolved oxygen levels, resulting in high energy consumption. Equipment depreciation and maintenance costs?including the amortization of investments in fermenters and separation/purification equipment (such as ion-exchange columns and membrane filtration systems)?account for about 10%?15%. Labor and management costs make up roughly 5%?10%. Additionally, downstream extraction and purification costs (e.g., isoelectric point precipitation, ion exchange, flocculation for cell removal, crystallization, and drying) constitute a significant portion of the total cost, as the efficiency of extraction directly impacts the final yield and cost-effectiveness. Overall, the fermentation method offers significant cost advantages over chemical synthesis; it utilizes renewable agricultural products and is environmentally friendly. Furthermore, continuous improvements in strain engineering and process optimization?leading to higher sugar-to-acid conversion rates and extraction yields?will further reduce unit production costs.

This report is a detailed and comprehensive analysis for global Bio-fermented Alanyl-Glutamine market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets.

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Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Bio-fermented Alanyl-Glutamine market size and forecasts, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/kg), 2021-2032

Global Bio-fermented Alanyl-Glutamine market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/kg), 2021-2032

Global Bio-fermented Alanyl-Glutamine market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (Tons), and average selling prices (US$/kg), 2021-2032

Global Bio-fermented Alanyl-Glutamine market shares of main players, shipments in revenue ($ Million), sales quantity (Tons), and ASP (US$/kg), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Bio-fermented Alanyl-Glutamine

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Bio-fermented Alanyl-Glutamine market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Ajinomoto, Kyowa Hakko Bio, Wuhan Microsen Technology, Jiangsu Chengxin Pharmaceutical, Jingjing Pharmaceutical, Shandong Chenlong Pharmaceutical, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

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Market Segmentation

Bio-fermented Alanyl-Glutamine market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Enzymatic Method

Fermentation Method

Market segment by Grade

Pharmaceutical Grade

Food Grade

Feed Grade

Market segment by Strains

CorynebacteriumGlutamicum

Escherichia Coli

Brevibacterium Flavum

Market segment by Application

Pharmaceuticals Industry

Food & Beverages

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Sports Nutrition & Supplements

Animal Feed

Others

Major players covered

Ajinomoto

Kyowa Hakko Bio

Wuhan Microsen Technology

Jiangsu Chengxin Pharmaceutical

Jingjing Pharmaceutical

Shandong Chenlong Pharmaceutical

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

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Chapter 1, to describe Bio-fermented Alanyl-Glutamine product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Bio-fermented Alanyl-Glutamine, with price, sales quantity, revenue, and global market share of Bio-fermented Alanyl-Glutamine from 2021 to 2026.

Chapter 3, the Bio-fermented Alanyl-Glutamine competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Bio-fermented Alanyl-Glutamine breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Bio-fermented Alanyl-Glutamine market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Bio-fermented Alanyl-Glutamine.

Chapter 14 and 15, to describe Bio-fermented Alanyl-Glutamine sales channel, distributors, customers, research findings and conclusion.

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