

# Global Biocatalysis & Biocatalysts Market Size Study & Forecast, by Type of Biocatalyst, Application, End User, and Regional Forecasts 2025-2035

<https://marketpublishers.com/r/G1292AC9F52FEN.html>

Date: July 2025

Pages: 285

Price: US\$ 3,750.00 (Single User License)

ID: G1292AC9F52FEN

## Abstracts

The Global Biocatalysis & Biocatalysts Market is valued at approximately USD 25.34 billion in 2024 and is anticipated to grow at a robust CAGR of over 10.10% throughout the forecast period 2025-2035. Biocatalysis—once a niche solution—has rapidly evolved into a transformative tool across a spectrum of industries. Biocatalysts, whether enzymes, whole cells, organelles, or other bioactive molecules, are being harnessed to catalyze chemical reactions with unprecedented precision, efficiency, and environmental sustainability. In the pharmaceutical sector, biocatalysts are instrumental in enhancing chiral purity and reducing synthesis steps. Meanwhile, in fine chemicals, biofuels, and even agriculture, their relevance is surging due to their lower energy requirements and minimal by-product generation. The global market expansion is being catalyzed by escalating demand for greener manufacturing protocols, heightened R&D in enzyme engineering, and favorable governmental policies incentivizing sustainable industrial practices.

What is accelerating the adoption of biocatalysts across various sectors is their unrivaled ability to selectively transform substrates under mild conditions—thus significantly reducing energy consumption and waste generation. For instance, in pharmaceutical manufacturing, biocatalysts streamline complex synthetic routes, offering both economic and environmental advantages. Likewise, in the food and beverage sector, enzymes play a pivotal role in fermentation, flavor enhancement, and shelf-life extension. According to the U.S. Department of Energy, innovations in enzyme technology could drive cost reductions of over 30% in biofuel production by 2030. These developments, coupled with increasing industrial automation and integration of AI-driven bioprocess design, are opening lucrative frontiers for biocatalysis. However, high initial R&D investments, challenges in large-scale enzyme production, and regulatory hurdles

could pose limitations on market scalability in certain regions.

Regionally, North America commanded the lion's share of the biocatalysis and biocatalysts market in 2024, largely due to its advanced biopharma industry, established infrastructure, and massive investments in green chemistry. The United States, in particular, has been a frontrunner, owing to its aggressive push toward sustainable chemical manufacturing and the presence of major biocatalyst developers. Europe closely follows, championing biocatalysis through stringent environmental regulations and strong funding for enzyme-based industrial processes. On the other hand, Asia Pacific is expected to witness the fastest growth during the forecast period. Rising demand from pharmaceutical, agricultural, and food industries—especially in China, India, and South Korea—is coupled with increasing government support and rapid industrialization, setting the stage for exponential regional expansion.

Major market player included in this report are:

BASF SE

Novozymes A/S

Codexis, Inc.

DSM-Firmenich

DuPont de Nemours, Inc.

Amano Enzyme Inc.

Chr. Hansen Holding A/S

Biocatalysts Ltd.

Evonik Industries AG

Johnson Matthey

Advanced Enzyme Technologies

Enzymicals AG

Kaneka Corporation

Creative Enzymes

AB Enzymes GmbH

### Global Biocatalysis & Biocatalysts Market Report Scope:

Historical Data – 2023, 2024

Base Year for Estimation – 2024

Forecast period - 2025-2035

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent up to 8 analysts' working hours) with purchase. Addition or alteration to country, regional & segment scope\*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values for the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within the countries involved in the study. The report also provides detailed information about crucial aspects, such as driving factors and challenges, which will define the future growth of the market. Additionally, it incorporates potential opportunities in micro-markets for stakeholders to invest, along with a detailed analysis of the competitive landscape and product offerings of key players. The detailed segments and sub-segments of the market are explained below:

By Type of Biocatalyst:

Enzymes

Whole Cells

Organelles

Other Biocatalysts (Nucleic Acids, Cofactors, Biomolecules)

By Application:

Pharmaceutical Manufacturing

Fine Chemical Synthesis

Food and Beverage Industry

Agriculture

Biofuel Production

Other Applications

By End User:

Pharmaceutical Companies

Chemical Companies

Food and Beverage Companies

Agricultural Companies

Biofuel Producers

Other End Users

## By Region:

### North America

U.S.

Canada

### Europe

UK

Germany

France

Spain

Italy

ROE

### Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

## Latin America

Brazil

Mexico

## Middle East & Africa

UAE

Saudi Arabia

South Africa

Rest of Middle East & Africa

## Key Takeaways:

Market Estimates & Forecast for 10 years from 2025 to 2035.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

Demand side and supply side analysis of the market.

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