Enzymes Market Assessment, By Product Type [Industrial Enzymes, Specialty Enzymes], By Type [Carbohydrase, Proteases, Lipases, Polymerases and Nucleases, Others], By Source [Microorganisms, Plants, Animals], By Reaction Type [Hydrolase, Oxidoreductase, Transferase, Lyase, Others], By Application [Pharmaceutical and Biotechnology Companies, Research, Diagnostics, Food and Beverages, Soil Treatment, Oil Treatment, Wastewater Treatment, Detergents, Feed, Textile, Others], By Region, Opportunities and Forecast, 2017-2031F

Market Report | 2024-11-27 | 229 pages | Market Xcel - Markets and Data

AVAILABLE LICENSES:

- Single User License $3300.00
- Muti-User/Corporate Licence $4500.00
- Custom Research License $7000.00

Report description:

Global enzymes market is projected to witness a CAGR of 6.55% during the forecast period 2024-2031, growing from USD 12.06 billion in 2023 to USD 20.03 billion in 2031. The market's growth is supported by expanding the global pharmaceutical and healthcare sectors, emerging advanced technologies, and increasing utilization of eco-friendly technologies. The rising investments by the market's key players towards the expansion of their production facilities are expected to aid them in expanding their market share and provide lucrative growth opportunities for the market. In July 2024, Amano Enzyme Inc., known for providing innovative solutions for food processing and manufacturing with the help of enzymes, celebrated the expansion of its manufacturing site in Illinois, United States. The construction is expected to be completed by April 2025 and is anticipated to support the company in delivering innovative new enzymes.
Furthermore, rising collaborations to augment the development of novel enzymes are also supporting the market's expansion. In August 2024, Twist Bioscience Corporation and bitBiome, Inc. announced the launch of their Transaminase Enzyme Screening Kit. Transaminase has emerged as an option for synthesizing chiral amines, which is essential for the pharmaceutical industry and

offers a green alternative to conventional synthesis. The kit features unique transaminases that pharma companies and laboratories can use to synthesize active pharmaceutical ingredients. Such collaborations are expected to bolster the availability of innovative solutions for different industries.

Additionally, the increasing consumption of baked goods bolstered the global demand for enzymes. As per the estimates of the American Bakers Association, the baking industry has an economic impact of over USD 186 billion in the United States. Enzymes and yeasts play a significant role in the production of baked goods, with amylases playing a crucial role in the bread-making process, proteases having large effects on physical gluten properties, and hemicellulases holding the capacity to destroy the water binding capacity of wheat flour, causing softening of dough. Thus, the growing consumption of baked goods is expected to provide lucrative growth opportunities to the global enzymes market.

Integration of AI Provides Growth Opportunities

Startups across the globe are receiving funding to advance enzyme design with the help of generative (artificial intelligence) AI. In August 2024, BIOMATTER INC. secured approximately USD 7 million (EUR6.5M) in funding for their innovative approach to designing enzymes from scratch, allowing them to go beyond the limitations of natural enzymes. They can also tailor enzymes for different sectors, reducing the development time from years to weeks.

Meanwhile, the development of AI models for producing sequences that support the production of functional enzymes with the required characteristics for different applications is also expected to influence the global enzymes market's expansion positively. In June 2024, Basecamp Research and Ferruz Laboratory at the Institute of Molecular Biology of Barcelona announced the release of ZymCTRL in partnership. The ChatGPT-like tool is used to generate new sequences from scratch with the help of an enzyme identification code that specifies the desired activity. ZymCTRL also offers cost-effective and rapid design capabilities for generating artificial enzymes and requires no seed sequence as opposed to other large language models.

Rising Collaborations Among Biotech Companies Support Market Expansion

The rising efforts of the leading biotech companies to bolster the production of next-generation enzymes are boosting the global enzymes market size. In April 2024, Ginkgo Bioworks and Prozomix Limited announced a new partnership to build out the production of next-gen enzyme plates for manufacturing active pharmaceutical ingredients. The partnership aims to leverage Prozomix's deep experience in manufacturing enzyme plates and existing enzyme libraries, as well as Ginkgo's industry-leading artificial intelligence/machine learning (AI/ML) models and enzyme services. This collaboration will also support the entry of Prozomix in Ginkgo's Technology Network, bring together a wide range of partners that span manufacturing, biologics, genetic medicines, and AI, and aim to integrate their capabilities for providing customers with successful research and development outcomes and end-to-end solutions. Ginkgo's customers will also have access to Prozomix's contract manufacturing services, such as enzyme samples. Such partnerships are expected to boost the production of next-generation enzymes and provide lucrative growth opportunities to the enzyme market.

Industrial Enzymes Account for Significant Market Share

The growth of the segment can be attributed to the rapid expansion of various industries and increasing investments in industrial enzymes. Industrial enzymes act as biocatalysts in several traditional chemical processes to enhance process efficiency and sustainability and find applications in sectors including textiles, feed, and detergents, among others. In August 2024, Lallemand Inc. invested in LIVZYM BIOTECHNOLOGY as part of its strategic collaboration in the industrial enzyme segment. LIVZYM is the first producer of industrial enzymes based in Turkey, allowing the company to serve customers across the Middle East and Africa, Europe, and Asia. The strategic investment from Lallemand is expected to provide LIVZYM with a significant opportunity to advance alternative protein technologies and sustainability. Additionally, the utilization of industrial enzymes by the detergents industry is also increasing, with amylases, lipases, and proteases being added to laundry detergents to make them more effective at lower temperatures and improve stain removal.

North America Holds the Major Market Share

The rapid expansion of healthcare, pharmaceutical, food and beverage, and agriculture and livestock sectors in the region augments the growth of the North America enzymes market. The strong presence of key players in the United States also provides lucrative growth opportunities for the market. In January 2023, BASF SE and Cargill announced expanded cooperation to add the United States to their existing feed enzymes distribution and development agreement. The collaboration aided the companies in increasing the accessibility to animal feed among the business owners while ensuring the availability of

high-performance enzyme solutions that have been shown to improve sustainability, reduce nutrient waste, and improve feed efficiency.

Meanwhile, the market is expected to witness significant growth in the Asia-Pacific region over the forecast period. This growth can be attributed to the rapid expansion of the food and beverage industry, growing requirements for processed foods, and rising demand for pharmaceuticals. As per the estimates of the India Brand Equity Foundation (IBEF), the domestic pharmaceutical industry is expected to reach USD 57 billion by FY2025. This growth is expected to propel the requirement for enzymes in the region as they are used directly for therapeutic applications as a drug as well as tools in manufacturing active pharmaceutical ingredients.

Future Market Scenario (2024-2031F)

As per the global enzymes market analysis, the market is expected to witness significant growth in the coming years due to the rising requirement for enzymes to meet the growing demand from pharmaceutical, food and beverage, and healthcare sectors, among others, in various regions across the globe. According to the estimates of the IBEF, the total market size of the pharma industry in India is expected to reach USD 450 billion by 2047. Such expansions are expected to bolster the market's demand and support its expansion in the Asia-Pacific region. Rising income levels and rapid population expansion are expected to increase enzyme requirements in the coming years. According to estimates from the United Nations, the global population is expected to grow to 9.7 billion by 2050. The expansion of the population is also expected to propel the reliance on the agriculture industry to meet the growing food demand, thus augmenting the requirement for soil treatment and positively influencing the market's expansion. Soil enzymes aid in increasing the rate of reaction at which plant residues start decomposing and releasing the available nutrients.

Key Players Landscape and Outlook

The key players in the market are increasingly engaging in mergers and acquisitions and collaboration activities to focus on their growth and expand their product portfolio. In October 2024, Codexis, Inc. announced that they have entered into a non-exclusive commercial and manufacturing licensing agreement for multiple enzymes in their life science enzyme portfolio with Alphazyme, LLC. The agreement involves the licenses for HiRev Isothermal Polymerase, HiTemp Reverse Transcriptase, and HiFi DNA Polymerase, among other enzymes. The transaction will enable Codexis, Inc., to focus on its strategic priorities as well as its near-term commercial opportunities. The agreement also marks another transaction in the company's strategy to divest their non-core assets to focus on the growth of their Enzyme Catalyzed Oligonucleotide (ECO) Synthesis manufacturing platform and the pharmaceutical manufacturing business.

In December 2023, Kerry Group announced that they had agreed to acquire Novozymes A/S and Chr. Hansen A/S's lactase enzyme business for approximately USD 162 million (EUR150 million). The European Commission cleared Hansen A/S and Novozymes A/S upon full compliance with the commitments. With the acquisition of the lactase enzyme business, Kerry Group will have access to technology that aids them in creating reduced-sugar and lactose-free dairy products.

Table of Contents:

5.2.2.1.Carbohydrase
5.2.2.2.Proteases
5.2.2.3.Lipases
5.2.2.4.Polymerases and Nucleases
5.2.2.5.Others
5.2.3.By Source
5.2.3.1.Microorganisms
5.2.3.2.Plants
5.2.3.3.Animals
5.2.4.By Reaction Type
5.2.4.1.Hydrolase
5.2.4.2.Oxidoreductase
5.2.4.3.Transferase
5.2.4.4.Lyase
5.2.4.5.Others
5.2.5.By Application
5.2.5.1.Pharmaceuticals and Biotechnology Companies
5.2.5.2.Research
5.2.5.3.Diagnostics
5.2.5.4.Food and Beverages
5.2.5.5.Soil Treatment
5.2.5.6.Oil Treatment
5.2.5.7.Wastewater Treatment
5.2.5.8.Detergents
5.2.5.9.Feed
5.2.5.10.Textile
5.2.5.11.Others
5.2.6.By Country Share
5.2.6.1.United States
5.2.6.2.Canada
5.2.6.3.Mexico
5.3.Country Market Assessment
5.3.1.United States Enzymes Market Outlook, 2017-2031F*
5.3.1.1.Market Size Analysis & Forecast
5.3.1.1.1.By Value
5.3.1.2.Market Share Analysis & Forecast
5.3.1.2.1.By Product Type
5.3.1.2.1.1.Industrial Enzymes
5.3.1.2.1.2.Specialty Enzymes
5.3.1.2.2.By Type
5.3.1.2.2.1.Carbohydrase
5.3.1.2.2.2.Proteases
5.3.1.2.2.3.Lipases
5.3.1.2.2.4.Polymerases and Nucleases
5.3.1.2.2.5.Others
5.3.1.2.3.By Source
5.3.1.2.3.1.Microorganisms

5.3.1.2.3.2.Plants
5.3.1.2.3.3.Animals
5.3.1.2.4.By Reaction Type
5.3.1.2.4.1.Hydrolase
5.3.1.2.4.2.Oxidoreductase
5.3.1.2.4.3.Transferase
5.3.1.2.4.4.Lyase
5.3.1.2.4.5.Others
5.3.1.2.5.By Application
5.3.1.2.5.1.Pharmaceuticals and Biotechnology Companies
5.3.1.2.5.2.Research
5.3.1.2.5.3.Diagnostics
5.3.1.2.5.4.Food and Beverages
5.3.1.2.5.5.Soil Treatment
5.3.1.2.5.6.Oil Treatment
5.3.1.2.5.7.Wastewater Treatment
5.3.1.2.5.8.Detergents
5.3.1.2.5.9.Feed
5.3.1.2.5.10.Textile
5.3.1.2.5.11.Others
5.3.2.Canada
5.3.3.Mexico
*All segments will be provided for all regions and countries covered
6.Europe Enzymes Market Outlook, 2017-2031F
6.1.Germany
6.2.France
6.3.Italy
6.4.United Kingdom
6.5.Russia
6.6.Netherlands
6.7.Spain
6.8.Poland
7.Asia-Pacific Enzymes Market Outlook, 2017-2031F
7.1.India
7.2.China
7.3.Japan
7.4.Australia
7.5.Vietnam
7.6.South Korea
7.7.Indonesia
7.8.Philippines
8.South America Enzymes Market Outlook, 2017-2031F
8.1.Brazil
8.2.Argentina
9.Middle East and Africa Enzymes Market Outlook, 2017-2031F
9.1.Saudi Arabia
9.2.UAE

*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

Enzymes Market Assessment, By Product Type [Industrial Enzymes, Specialty Enzymes], By Type [Carbohydrase, Proteases, Lipases, Polymerases and Nucleases, Others], By Source [Microorganisms, Plants, Animals], By Reaction Type [Hydrolase, Oxidoreductase, Transferase, Lyase, Others], By Application [Pharmaceutical and Biotechnology Companies, Research, Diagnostics, Food and Beverages, Soil Treatment, Oil Treatment, Wastewater Treatment, Detergents, Feed, Textile, Others], By Region, Opportunities and Forecast, 2017-2031F

Market Report | 2024-11-27 | 229 pages | Market Xcel - Markets and Data

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$3300.00
	Muti-User/Corporate Licence	$4500.00
	Custom Research License	$7000.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email* Phone*

First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2025-05-04
		Signature	