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Global Ketoreductases for Chiral Catalysis Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Ketoreductases for Chiral Catalysis market size was valued at US$ 112 million in 2025 and is forecast to a readjusted size of US$ 178 million by 2032 with a CAGR of 6.9% during review period.

Ketoreductases for chiral catalysis are oxidoreductase enzymes that selectively convert prochiral ketone substrates into chiral alcohols with defined stereochemical configurations through asymmetric reduction reactions. They typically operate with NAD(H)- or NADP(H)-based cofactor systems and are often integrated with cofactor regeneration technologies to support efficient catalytic turnover. Owing to their strong chemoselectivity, regioselectivity, and enantioselectivity, these enzymes can construct complex chiral centers under relatively mild reaction conditions, making them important tools in greener synthesis and industrial biocatalysis. Their upstream inputs mainly include enzyme gene resources, engineered microbial strains, fermentation media, expression systems, cofactors and cofactor-regeneration components, stabilizers, and purification materials, while downstream customers mainly include pharmaceutical intermediate manufacturers, API process developers, fine chemical producers, industrial biocatalysis solution providers, and research institutions. They are widely used in the preparation of chiral pharmaceutical building blocks, functionalized alcohol intermediates, and other high-value fine chemicals. The overall industry gross margin for ketoreductases used in chiral catalysis is conservatively estimated at approximately 45%–60%.

Ketoreductases for chiral catalysis have become one of the more representative high-value enzyme categories in industrial biocatalysis, with demand concentrated in the synthesis of chiral alcohols, pharmaceutical intermediates, and advanced fine

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chemicals. Compared with conventional metal-catalyzed or multi-step chemical reduction routes, ketoreductases offer clear advantages in enantioselectivity, milder reaction conditions, and by-product control. As a result, they are gaining continued relevance in processes requiring precise stereochemical construction. On the supply side, the market is evolving toward a more complete structure that includes screening kits, standardized enzyme preparations, engineered biocatalysts, and process scale-up services, indicating a gradual shift from enzyme discovery toward reproducible industrial application.

Future development will focus on broader substrate compatibility, stronger enzyme robustness, and improved industrial feasibility for more challenging asymmetric reductions. Advances in protein engineering, semi-rational design, and high-throughput screening are making ketoreductases more applicable to complex aromatic ketones, sterically hindered substrates, and high-value pharmaceutical precursors. Recent technical work also shows that engineered ketoreductases can support demanding transformations in the synthesis of sophisticated drug molecules, suggesting that the commercial boundary of this enzyme class is still expanding rather than approaching maturity.

The main growth drivers come from sustained demand for greener synthesis, higher process safety, and tighter stereochemical control in pharmaceuticals and fine chemicals. At the same time, progress in cofactor regeneration, enzyme immobilization, and continuous reaction systems is improving the economic viability of ketoreductase-based processes at larger scale. These developments are helping ketoreductases move beyond laboratory screening into pilot and commercial manufacturing environments. Suppliers with broad enzyme libraries, rapid screening platforms, cofactor-system design capability, and proven process-transfer experience are likely to gain stronger competitive positions over time.

Despite these opportunities, further market penetration still faces several constraints. Ketoreductase performance is often highly sensitive to substrate structure, cofactor system, solvent environment, and reaction equilibrium, which means many projects continue to require case-specific screening and enzyme engineering rather than straightforward standardization. Cofactor consumption and regeneration efficiency, enzyme stability under high substrate loading and complex reaction conditions, and overall process-cost control remain central issues for broader industrial substitution. Going forward, competition in this field will increasingly depend on integrated capabilities that combine enzyme-performance improvement with holistic process optimization.

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This report is a detailed and comprehensive analysis for global Ketoreductases for Chiral Catalysis market. Both quantitative and qualitative analyses are presented by company, 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. 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 Ketoreductases for Chiral Catalysis market size and forecasts, in consumption value ($ Million), 2021-2032

Global Ketoreductases for Chiral Catalysis market size and forecasts by region and country, in consumption value ($ Million), 2021-2032

Global Ketoreductases for Chiral Catalysis market size and forecasts, by Type and by Application, in consumption value ($ Million), 2021-2032

Global Ketoreductases for Chiral Catalysis market shares of main players, in revenue ($ Million), 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 Ketoreductases for Chiral Catalysis

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 Ketoreductases for Chiral Catalysis market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Codexis, Almac Group, Prozomix, Johnson Matthey, Evoxx Technologies, Amano Enzyme, Zhejiang Syncozymes Bio-pharmaceutical, Asymchem,

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etc.

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

Market segmentation

Ketoreductases for Chiral Catalysis 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. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Enzyme Screening Kits

Individual Enzyme Preparations

Other

Market segment by Cofactor Dependence

NAD-dependent Enzymes

NADP-dependent Enzymes

Other

Market segment by Application

Pharmaceutical Intermediates

Fine Chemicals

Other

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Market segment by players, this report covers

Codexis

Almac Group

Prozomix

Johnson Matthey

Evoxx Technologies

Amano Enzyme

Zhejiang Syncozymes Bio-pharmaceutical

Asymchem

Market segment by regions, regional analysis covers

North America (United States, Canada and Mexico)

Europe (Germany, France, UK, Russia, Italy and Rest of Europe)

Asia-Pacific (China, Japan, South Korea, India, Southeast Asia and Rest of Asia-Pacific)

South America (Brazil, Rest of South America)

Middle East & Africa (Turkey, Saudi Arabia, UAE, Rest of Middle East & Africa)

The content of the study subjects, includes a total of 13 chapters:

Chapter 1, to describe Ketoreductases for Chiral Catalysis product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top players of Ketoreductases for Chiral Catalysis, with revenue, gross margin, and global market share of Ketoreductases for Chiral Catalysis

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from 2021 to 2026.

Chapter 3, the Ketoreductases for Chiral Catalysis competitive situation, revenue, and global market share of top players are analyzed emphatically by landscape contrast.

Chapter 4 and 5, to segment the market size by Type and by Application, with consumption value and growth rate by Type, by Application, from 2021 to 2032.

Chapter 6, 7, 8, 9, and 10, to break the market size data at the country level, with revenue and market share for key countries in the world, from 2021 to 2026.and Ketoreductases for Chiral Catalysis market forecast, by regions, by Type and by Application, with consumption value, from 2027 to 2032.

Chapter 11, market dynamics, drivers, restraints, trends, Porters Five Forces analysis.

Chapter 12, the key raw materials and key suppliers, and industry chain of Ketoreductases for Chiral Catalysis.

Chapter 13, to describe Ketoreductases for Chiral Catalysis research findings and conclusion.

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