

Global Ketoreductases In Chiral Catalysis Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Ketoreductases In Chiral Catalysis market size is expected to reach \$ 320 million by 2032, rising at a market growth of 14.2% CAGR during the forecast period (2026-2032).

Ketoreductases in chiral catalysis are enzymes used within chiral catalytic systems to selectively reduce ketone substrates into chiral alcohols with high enantioselectivity. They typically rely on cofactors such as NAD(P)H and operate through a hydride transfer mechanism, transferring a hydride from a donor to the ketone substrate to produce chiral alcohol products. Ketoreductases in chiral catalysis are widely applied in the synthesis of pharmaceuticals, fine chemicals, and natural product derivatives, serving as key biocatalytic tools to enhance product stereochemical purity and process sustainability. Ketoreductases in chiral catalysis serve as key biocatalysts for chiral alcohol synthesis.

Annual reaction throughput is roughly 12 tons, and nominal global enzyme-related capacity is about 50 tons, spanning laboratory to pilot-scale operations. Pricing averages approximately USD 2,500/kg for free or immobilized enzymes and USD 4,000/kg for engineered ketoreductases, with a blended gross margin of around 48%. Downstream demand is dominated by pharmaceuticals (>60%), particularly for chiral drug intermediates and active pharmaceutical ingredients (APIs), which require high stereochemical purity and process reliability. Fine chemicals and natural product derivatives represent secondary markets, where customers prioritize substrate scope and reaction efficiency. Upstream inputs include ketone substrates and cofactors such as NAD(P)H, midstream encompasses enzyme production, engineering, and process development, while downstream focuses on high-value chiral alcohol and intermediate production. The global industry structure shows parallel innovation and scale-up: US and

EU companies lead in protein engineering and methodology development, offering extensive enzyme libraries and high-throughput screening technologies, whereas Chinese companies excel in process scale-up and CDMO services, enabling commercial production and custom solutions. In terms of competition, companies like Codexis, Novozymes, and Evonik hold advantages in protein engineering and commercialization, while domestic players focus on engineering scale-up and rapid process development. Key technological trends include improving enzyme thermal stability, substrate versatility, and scale-up processes. Integration with whole-cell biocatalysis and immobilized enzyme systems can further reduce costs and enhance efficiency. The market is in a growth phase, driven by increasing demand for chiral drugs, advances in protein engineering, and expansion of CDMO services. Key uncertainties include enzyme stability, substrate range, scale-up challenges, and impacts from global raw material prices and regulatory changes on CDMO cost and delivery.

This report studies the global Ketoreductases In Chiral Catalysis production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Ketoreductases In Chiral Catalysis and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Ketoreductases In Chiral Catalysis that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Ketoreductases In Chiral Catalysis total production and demand, 2021-2032, (kg)

Global Ketoreductases In Chiral Catalysis total production value, 2021-2032, (USD Million)

Global Ketoreductases In Chiral Catalysis production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (kg), (based on production site)

Global Ketoreductases In Chiral Catalysis consumption by region & country, CAGR, 2021-2032 & (kg)

U.S. VS China: Ketoreductases In Chiral Catalysis domestic production, consumption, key domestic manufacturers and share

Global Ketoreductases In Chiral Catalysis production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (kg)

Global Ketoreductases In Chiral Catalysis production by Type, production, value,

CAGR, 2021-2032, (USD Million) & (kg)

Global Ketoreductasese In Chiral Catalysis production by Application, production, value, CAGR, 2021-2032, (USD Million) & (kg)

This report profiles key players in the global Ketoreductasese In Chiral Catalysis market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Codexis, Evonik, Johnson Matthey, BASF, Novozymes, WuXi AppTec, Asymchem, Lonza, etc.

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

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Ketoreductasese In Chiral Catalysis market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (kg) and average price (US\$/kg) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Ketoreductasese In Chiral Catalysis Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Ketoreductasese In Chiral Catalysis Market, Segmentation by Type:

NAD(P)H-Dependent Ketoreductase

Engineered Ketoreductase

Biotype Ketonereductase

Global Ketoreductasese In Chiral Catalysis Market, Segmentation by From:

Free Enzyme

Immobilized Enzyme

Whole Cell

Enzyme Cocktails

Global Ketoreductasese In Chiral Catalysis Market, Segmentation by Application:

Natural Product Derivatives

Pharmaceuticals

Agrochemicals

Fine Chemicals

Others

Companies Profiled:

Codexis

Evonik

Johnson Matthey

BASF

Novozymes

WuXi AppTec

Asymchem

Lonza

Key Questions Answered:

1. How big is the global Ketoreductasese In Chiral Catalysis market?
2. What is the demand of the global Ketoreductasese In Chiral Catalysis market?
3. What is the year over year growth of the global Ketoreductasese In Chiral Catalysis market?
4. What is the production and production value of the global Ketoreductasese In Chiral Catalysis market?
5. Who are the key producers in the global Ketoreductasese In Chiral Catalysis market?
6. What are the growth factors driving the market demand?

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