

# **Biocatalysis & Biocatalysts Market By Type (Hydrolases, Oxidoreductases, Transferases, And Others), Application (Food & Beverages, Cleaning Agents, Agriculture & Feed, Biofuel Production, Biopharmaceuticals, And Others), And Geography - Forecast Till 2019**

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## **Abstracts**

The biocatalysts market was estimated around 81 kilo tons in 2013, with the high share of around 70% held by North America and Europe together. The global biocatalysts market by volume is projected to grow at a CAGR of 5.5% from 2014 to 2019. The high growth is forecasted to be in the RoW due to rise of end industries such as biofuel production, agriculture & feed, food and beverages in the region. Europe is estimated to have the second highest growth around 6.71% from 2014 to 2019.

Advancements in the biocatalysis process have led to increased penetration of biocatalysts in different applications. Biofuel and detergent industries have the largest application of biocatalysts. Food & beverages, agriculture & feed, biopharmaceuticals are the other significant applications. Small applications include life science applications, textile, leather, pulp & paper, and flavor & fragrances. Biofuel and biopharmaceuticals applications are predicted to show the highest growth rate in the next five years.

Hydrolases, transferases, and oxidoreductases are the major types of biocatalysts. The other three segments of biocatalysts — lyases, isomerases, and ligases are small part of the biocatalysts market currently.

The value chain for biocatalyst starts with the raw material suppliers who provides

chemicals, fermentation medium, and bioreactors for the production of enzymes. The next node in the value chain is the enzyme manufacturer. The enzymes are extracted either from plant and animal cells or from micro-organisms after they are produced through fermentation. The extracted enzymes can be liquid form or solid form according to the requirement of the application. Bio-product manufacturers are the next node of the value chain. These manufacturers use biocatalysts to produce their products such as laundry detergent, biofuels, food & beverages, feed, and pharmaceuticals. Biocatalysts offer high yield and purity at low costs. Contract manufacturers and contract research organizations are an important part of the biocatalysts value chain.

The biocatalysts market is anticipated to show a high growth rate in the coming years. The market is innovation driven and investments are expected for new biocatalysis process and enzyme development. There are large numbers of various sized players in the market but it is dominated by few big companies.

Currently, the biocatalyst market is mainly concentrated in the North American and European region while RoW region, especially Latin America is expected to show high growth rate in future years. Advancement in biocatalysis process along with increasing penetration of biocatalysts in different applications is driving the growth of the global biocatalysts market.

Novozymes (Denmark), DuPont (U.S.), DSM (Netherlands) are the important active players in the biocatalysts market. These companies showed the highest strategy adoptions amongst other players in the biocatalysts market from 2010 to 2014. These companies together hold around 70% share of the biocatalysts market.

From 2010 to 2014, partnership, agreement, and collaboration was observed as the most important growth strategy adopted by the major biocatalysts, accounting for a share of more than 50% of the total strategies adopted by the players. The other companies AB Enzymes (Germany), Codexis Inc. (U.S.), and BASF (Germany) also contributed to the market activities in the global biocatalysts market during the above mentioned period.

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