

# **Global Markets and Technologies for Biofuel Enzymes**

https://marketpublishers.com/r/GE98AD528015EN.html Date: August 2021 Pages: 133 Price: US\$ 2,750.00 (Single User License) ID: GE98AD528015EN

# **Abstracts**

Report Scope:

The study scope includes the major biofuel enzymes that are being used in the commercial production of biofuels. Each biofuel enzyme is analyzed to determine its market status, impact on future market segments and forecasted growth from 2021 through 2026. BCC analyzed each market and its applications, regulatory environment, technology, market projections and market share. This report mainly deals with the types of biofuel enzymes and covers the total market for amylase, cellulase, xylanase, lipase and other enzymes. Technological issues include the latest trends and developments. Technology issues and market-driving forces are discussed. Influencing factors, including enzyme efficiencies, biofuel demand and supply, research on various enzymes and industry structure, are also discussed. BCC Research examines biofuel enzyme companies and industry alliances, biofuel production, end-user industry and market-driving forces.

Enzymes serving other industries, like food and beverage, brewing, detergent, pharmaceutical, biopolymer, biochemical, animal nutrition, health, textiles, the fragrance industry and personal care are excluded from this report. The production of biofuel without using enzymes via processes like gasification and torrefaction, are also excluded from this report.

**Report Includes:** 

73 data tables and 12 additional tables

An updated review of the global markets and technologies for biofuel enzymes

Analyses of the global market trends, with data from 2020, estimates for 2021



and projections of compound annual growth rates (CAGRs) through 2026

Highlights of key market dynamics (DROs) for biofuel enzymes, opportunity assessment and impact of COVID-19 on the progress of this market

Estimation of market size and market forecast for overall biofuel enzymes global market, and corresponding market share analysis by enzyme type, application, feedstock and geographic region

Evaluation of the trends, gaps and opportunities in the market, estimating current and future demand of biofuel enzymes in various global markets

Identification of the companies that are best positioned to meet this demand because of their proprietary technologies, strategic alliances or other advantages

Emphasis on the new and different types of market regulations enforced by authorities in biofuel enzyme production

Reviews of new technologies and their uses, along with new patents and their importance

Descriptive company profiles of the major market players, including AB Enzymes, DuPont, logen, Noor Enzymes Pvt., Ltd., Schaumann BioEnergy and Verenium Corp.



## Contents

#### **CHAPTER 1 INTRODUCTION**

Biofuels Needed Today Definitions Study Goals and Objectives Reasons for Doing the Study What's New in This Update Scope of Report Methodology Information Sources Intended Audience Geographic Breakdown Analyst's Credentials BCC Custom Research Related BCC Research Reports

### **CHAPTER 2 SUMMARY AND HIGHLIGHTS**

### **CHAPTER 3 BIOFUEL INDUSTRY OUTLOOK**

Introduction **Biofuel Types** Solid Biofuel Liquid Biofuel Biodiesel **Gaseous Biofuel** Classification According to Generations of Biofuel **First Generation Biofuel** Second Generation of Biofuel Third Generation of Biofuel Feedstock for Biofuel **First-Generation Feedstock** Second-Generation Feedstock **Third Generation Feedstock Biofuel Feedstocks Around the World** Top 10 Sources of Biofuel Cellulose



Algal Oil Corn Soy Sugarcane Camelina and Jatropha Rapeseed Methane Animal Fat Paper Waste Advantages and Disadvantages of Biofuels

### **CHAPTER 4 MARKET OVERVIEW**

What is an Enzyme? Nomenclature and Classification of Enzymes Nomenclature Classification Mode of Action Lock and Key Model Induced Fit Model **Enzyme Specificity** Factors Affecting the Performance of Enzymes **Enzyme Sources** Production of Enzymes Steps in Production of Enzymes Role of Enzymes in Biofuel Production Thermostable and Immobilized Enzymes in Biofuel Common Enzymes in Production of Biofuel Amylase in Biofuel Xylanase in Biofuel Factors Affecting the Biofuel Enzyme Market **Environmental Concerns** Cost of Fossil Fuels versus Cost of Biofuel Technologies for Boosting Production of Biofuel Challenges for Enzymatic Biofuel

## CHAPTER 5 REGULATORY ASPECTS OF BIOFUEL PRODUCTION

Overview of Global Regulations for Biofuel Production



EPA's Role in the Sustainable Growth of Biofuels

#### **CHAPTER 6 GLOBAL MARKET FOR BIOFUEL ENZYMES**

Introduction

Global Market for Biofuel Enzymes by Feedstock Global Market for Biofuel Enzymes by Application Global Market for Biofuel Enzymes by Type Global Market for Biofuel Enzymes by Region

#### CHAPTER 7 MARKET BREAKDOWN BY ENZYME TYPE

Enzymes: Key Components in Biofuel Production Amylase Market Size Estimation and Forecast Analysis Cellulase Market Size Estimation and Forecast Analysis Xylanase Market Size Estimation and Forecast Analysis Lipase Market Size Estimation and Forecast Analysis Other Enzymes Market Size Estimation and Forecast Analysis

#### **CHAPTER 8 MARKET BREAKDOWN BY FEEDSTOCK**

Starch as a Feedstock for Biofuel Production Overview Market Size Estimation and Forecast Analysis Sugar as Feedstock for Biofuel Production Overview Market Size Estimation and Forecast Analysis Vegetable Oils as Feedstock for Biofuel Production Overview Market Size Estimation and Forecast Analysis Animal Oils/Fats as Feedstock for Biofuel Production Overview Market Size Estimation and Forecast Analysis Waste Oils/Fats as Feedstock for Biofuel Production



Overview Market Size Estimation and Forecast Analysis Algae as Feedstock for Biofuel Production Overview Market Size Estimation and Forecast Analysis Other Types of Feedstocks for Biofuel Production Market Size Estimation and Forecast Analysis

## CHAPTER 9 MARKET BREAKDOWN BY APPLICATION

Bioethanol Production Overview Market Size Estimation and Forecast Analysis Biodiesel Production Increasing Demand for Diesel Substitutes Market Size Estimation and Forecast Analysis Biomethane Production Biomethane for NGV Powertrains Green Diesel Biofuels in Aviation Market Size Estimation and Forecast Analysis Biolubricant Production Overview Other Applications

### CHAPTER 10 NORTH AMERICAN MARKET FOR BIOFUEL ENZYMES

U.S. Biofuel Production Trend Analysis Market Estimation and Forecast Analysis Canada Biofuel Production Trend Analysis Market Estimation and Forecast Analysis

### **CHAPTER 11 EUROPEAN MARKET FOR BIOFUEL ENZYMES**

Germany Biofuel Production Trend Analysis Renewable Energies in Transport



Market Estimation and Forecast Analysis France **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis Netherlands **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis Spain **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis Poland **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis Italy **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis **Rest of Europe** Market Estimation and Forecast Analysis

## CHAPTER 12 ASIA-PACIFIC MARKET FOR BIOFUEL ENZYMES

Indonesia **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis China **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis Thailand **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis India **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis South Korea **Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis **Rest of Asia-Pacific Biofuel Production Trend Analysis** Market Estimation and Forecast Analysis



#### CHAPTER 13 REST OF THE WORLD MARKET FOR BIOFUEL ENZYMES

Biofuel in Africa Biofuel in Latin America Latin America Overview Biofuel Production Trend Analysis Market Estimation and Forecast Analysis Middle East Market Estimation and Forecast Analysis Africa Market Estimation and Forecast Analysis

#### **CHAPTER 14 COMPETITIVE LANDSCAPE**

Amylase Market Leaders Cellulase Market Leaders Xylanase Market Leaders Lipase Market Leaders Other Enzymes Market Leaders

### **CHAPTER 15 COMPANY PROFILES**

AB ENZYMES GMBH C-LECTA GMBH CODEXIS INC. DANISCO A/S DUPONT DYADIC INTERNATIONAL ENZYME DEVELOPMENT CORP. ENZYME SOLUTIONS INC. ENZYME SUPPLIES LTD. IOGEN CORP.



JIANGSU BOLI BIOPRODUCTS CO., LTD. MAPS ENZYMES LTD. NOOR ENZYMES PVT., LTD. NOVOZYMES A/S ROYAL DSM NV SCHAUMANN BIOENERGY SPECIALTY ENZYMES & BIOTECHNOLOGIES CO. TRANSBIODIESEL LTD. VERENIUM CORP.

#### **CHAPTER 16 APPENDIX: ACRONYMS**

Acronyms



# **List Of Tables**

### LIST OF TABLES

Summary Table: Global Market for Biofuel Enzymes, by Region, Through 2026 Table 1: History of Ethanol Industry Table 2: Commonly used Feedstocks for Biodiesel in Various Parts of the World Table 3: Advantages and Disadvantage of Biofuels Table 4: Types of Enzymes and Reactions Catalyzed Table 5: Factors Affecting The Performance of Enzymes Table 6: Estimated Annual Amount of Co2 Reduction in the U.S. after Using E15 Table 7: Global Market for Biofuel Enzymes, by Feedstock, Through 2026 Table 8: Global Market for Biofuel Enzymes, by Application, Through 2026 Table 9: Global Market for Biofuel Enzymes, by Type, Through 2026 Table 10: Global Market for Biofuel Enzymes, by Region, Through 2026 Table 11: Global Market for Amylase for Biofuel Production, by Region, Through 2026 Table 12: Global Market for Cellulase for Biofuel Production, by Region, Through 2026 Table 13: Global Market for Xylanase for Biofuel Production, by Region, Through 2026 Table 14: Global Market for Lipase for Biofuel Production, by Region, Through 2026 Table 15: Global Market for Other Enzymes for Biofuel Production, by Region, Through 2026 Table 16: Global Biofuel Enzymes Market for Starch Feedstock for Biofuel Production, by Region, Through 2026 Table 17: Global Biofuel Enzymes Market for Sugar Feedstock for Biofuel Production, by Region, Through 2026 Table 18: Global Biofuel Enzymes Market for Vegetable Oils as Feedstock for Biofuel Production, by Region, Through 2026 Table 19: Global Biofuel Enzymes Market for Animal Oils/Fats as Feedstock for Biofuel Production, by Region, Through 2026 Table 20: Global Biofuel Enzymes Market for Waste Oil/Fat Feedstock for Biofuel Production, by Region, Through 2026 Table 21: Global Biofuel Enzymes Market for Algae as Feedstock for Biofuel Production, by Region, Through 2026 Table 22: Global Biofuel Enzymes Market for Other Types of Feedstocks for Biofuel Production, by Region, Through 2026 Table 23: Global Biofuel Enzymes Market for Bioethanol Production, by Region, Through 2026 Table 24: Global Biofuel Enzymes Market for Biodiesel Production, by Region, Through 2026



Table 25: Global Biofuel Enzymes Market for Biomethane Production, by Region, Through 2026

Table 26: Global Biofuel Enzymes Market for Green Diesel Production, by Region, Through 2026

Table 27: Global Biofuel Enzymes Market for Biolubricant Production, by Region, Through 2026

Table 28: Global Biofuel Enzymes Market for Other Applications, by Region, Through 2026

- Table 29: North American Market for Biofuel Enzymes, by Feedstock, Through 2026
- Table 30: North American Market for Biofuel Enzymes, by Type, Through 2026
- Table 31: North American Market for Biofuel Enzymes, by Application, Through 2026
- Table 32: North American Market for Biofuel Enzymes, by Country, Through 2026

Table 33: U.S. Biofuel Production Trend Analysis, 2015-2020

Table 34: U.S. Market for Biofuel Enzymes, Through 2026

Table 35: Canadian Biofuel Production Trend Analysis, 2015-2020

Table 36: Canadian Market for Biofuel Enzymes, Through 2026

Table 37: European Market for Biofuel Enzymes, by Feedstock, Through 2026

Table 38: European Market for Biofuel Enzymes, by Type, Through 2026

Table 39: European Market for Biofuel Enzymes, by Application, Through 2026

Table 40: European Market for Biofuel Enzymes, by Country, Through 2026

Table 41: German Biofuel Production Trend Analysis, 2015-2020

Table 42: German Market for Biofuel Enzymes, Through 2026

Table 43: French Biofuel Production Trend Analysis, 2015-2020

Table 44: French Market for Biofuel Enzymes, Through 2026

Table 45: Netherlands Biofuel Production Trend Analysis, 2015-2020

Table 46: Netherlands Market for Biofuel Enzymes, Through 2026

Table 47: Spanish Biofuel Production Trend Analysis, 2015-2020

Table 48: Spanish Market for Biofuel Enzymes, Through 2026

Table 49: Polish Biofuel Production Trend Analysis, 2015-2020

Table 50: Polish Market for Biofuel Enzymes, Through 2026

Table 51: Italian Biofuel Production Trend Analysis, 2015-2020

Table 52: Italian Market for Biofuel Enzymes, Through 2026

Table 53: Rest of European Market for Biofuel Enzymes, Through 2026

Table 54: Asia-Pacific Market for Biofuel Enzymes, by Feedstock, Through 2026

 Table 55: Asia-Pacific Market for Biofuel Enzymes, by Type, Through 2026

Table 56: Asia-Pacific Market for Biofuel Enzymes, by Application, Through 2026

Table 57: Asia-Pacific Market for Biofuel Enzymes, by Country, Through 2026

Table 58: Indonesian Biofuel Production Trend Analysis, 2015-2020

Table 59: Indonesian Market for Biofuel Enzymes, Through 2026



Table 60: Chinese Biofuel Production Trend Analysis, 2015-2020 Table 61: Chinese Market for Biofuel Enzymes, Through 2026 Table 62: Thailand Biofuel Production Trend Analysis, 2015-2020 Table 63: Thailand Market for Biofuel Enzymes, Through 2026 Table 64: Indian Biofuel Production Trend Analysis, 2015-2020 Table 65: Indian Market for Biofuel Enzymes, Through 2026 Table 66: South Korean Biofuel Production Trend Analysis, 2015-2020 Table 67: South Korean Market for Biofuel Enzymes, Through 2026 Table 68: Rest of Asia-Pacific Market for Biofuel Enzymes, Through 2026 Table 69: RoW Market for Biofuel Enzymes, by Feedstock, Through 2026 Table 70: RoW Market for Biofuel Enzymes, by Application, Through 2026 Table 71: RoW Market for Biofuel Enzymes, by Type, Through 2026 Table 72: RoW Market for Biofuel Enzymes, by Country, Through 2026 Table 73: Brazilian Biofuel Production Trend Analysis, 2015-2020 Table 74: Argentinian Biofuel Production Trend Analysis, 2015-2020 Table 75: Colombian Biofuel Production Trend Analysis, 2015-2020 Table 76: Latin American Market for Biofuel Enzymes, Through 2026 Table 77: Middle Eastern Market for Biofuel Enzymes, Through 2026 Table 78: African Market for Biofuel Enzymes, Through 2026 Table 79: Leading Manufacturers/Suppliers of Amylase Biofuel Enzyme, 2020 Table 80: Leading Manufacturers/Suppliers of Cellulase Biofuel Enzyme, 2020 Table 81: Leading Manufacturers/Suppliers of Xylanase Biofuel Enzyme, 2020 Table 82: Leading Manufacturers/Suppliers of Lipase Biofuel Enzyme, 2020 Table 83: Leading Manufacturers/Suppliers of Other Biofuel Enzymes, 2020 Table 84: Acronyms Used in This Report



# **List Of Figures**

#### LIST OF FIGURES

Summary Figure: Global Market Share for Biofuel Enzymes, by Region, 2020 Figure 1: Global Market Shares of Biofuel Enzymes, by Feedstock, 2020 Figure 2: Global Market Shares of Biofuel Enzymes, by Application, 2020 Figure 3: Global Market Shares of Biofuel Enzymes, by Type, 2020 Figure 4: Global Market Shares of Biofuel Enzymes, by Region, 2020 Figure 5: Global Market Shares of Amylase for Biofuel Production, by Region, 2020 Figure 6: Global Market Shares of Cellulase for Biofuel Production, by Region, 2020 Figure 7: Global Market Shares of Xylanase for Biofuel Production, by Region, 2020 Figure 8: Global Market Shares of Lipase for Biofuel Production, by Region, 2020 Figure 9: Global Market Shares of Other Enzymes for Biofuel Production, by Region, 2020 Figure 10: Global Market Shares of Biofuel Enzymes for Starch Feedstock for Biofuel Production, by Region, 2020 Figure 11: Global Market Shares of Biofuel Enzymes for Sugar Feedstock for Biofuel Production, by Region, 2020 Figure 12: Global Market Shares of Biofuel Enzymes for Vegetable Oils as Feedstock for Biofuel Production, by Region, 2020 Figure 13: Global Market Shares of Biofuel Enzymes for Animal Oils/Fat as Feedstock for Biofuel Production, by Region, 2020 Figure 14: Global Market Shares of Biofuel Enzymes for Waste Oil/Fat as Feedstock for Biofuel Production, by Region, 2020 Figure 15: Global Market Shares of Biofuel Enzymes for Algae as Feedstock for Biofuel Production, by Region, 2020 Figure 16: Global Market Shares of Biofuel Enzymes for Other Types of Feedstock for Biofuel Production, by Region, 2020 Figure 17: Global Market Shares of Biofuel Enzymes for Bioethanol Production, by Region, 2020 Figure 18: Global Market Shares of Biofuel Enzymes for Biodiesel Production, by Region, 2020 Figure 19: Global Market Shares of Biofuel Enzymes for Biomethane Production, by Region, 2020 Figure 20: Global Market Shares of Biofuel Enzymes for Green Diesel Production, by Region, 2020 Figure 21: Global Market Shares of Biofuel Enzymes for Biolubricant Production, by Region, 2020



Figure 22: Global Market Shares of Biofuel Enzymes for Other Applications, by Region, 2020

Figure 23: North American Market Shares of Biofuel Enzymes, by Feedstock, 2020 Figure 24: North American Market Shares of Biofuel Enzymes, by Type, 2020 Figure 25: North American Market Shares of Biofuel Enzymes, by Application, 2020 Figure 26: North American Market Shares of Biofuel Enzymes, by Country, 2020 Figure 27: European Market Shares of Biofuel Enzymes, by Feedstock, 2020 Figure 28: European Market Shares of Biofuel Enzymes, by Type, 2020 Figure 29: European Market Shares of Biofuel Enzymes, by Application, 2020 Figure 30: European Market Shares of Biofuel Enzymes, by Country, 2020 Figure 31: Asia-Pacific Market Shares of Biofuel Enzymes, by Feedstock, 2020 Figure 32: Asia-Pacific Market Shares of Biofuel Enzymes, by Type, 2020 Figure 33: Asia-Pacific Market Shares of Biofuel Enzymes, by Application, 2020 Figure 34: Asia-Pacific Market Shares of Biofuel Enzymes, by Country, 2020 Figure 35: RoW Market Shares of Biofuel Enzymes, by Feedstock, 2020 Figure 36: RoW Market Shares of Biofuel Enzymes, by Application, 2020 Figure 37: RoW Market Shares of Biofuel Enzymes, by Type, 2020 Figure 38: RoW Market Shares of Biofuel Enzymes, by Country, 2020



### I would like to order

Product name: Global Markets and Technologies for Biofuel Enzymes Product link: https://marketpublishers.com/r/GE98AD528015EN.html Price: US\$ 2,750.00 (Single User License / Electronic Delivery) If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <u>https://marketpublishers.com/r/GE98AD528015EN.html</u>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name: Last name: Email: Company: Address: City: Zip code: Country: Tel: Fax: Your message:

\*\*All fields are required

Custumer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <u>https://marketpublishers.com/docs/terms.html</u>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970