Biorefinery Products: Global Markets

Description:  Report Includes

- A complete techno-economic and environmental analysis of industrial biorefinery products
- Analyses of global market trends, with data from 2015, estimates for 2016, and projections of compound annual growth rates (CAGRs) through 2021
- Breakdowns of product demand by division, including energetic (ethanol, biodiesel, electricity/heat), nonenergetic (chemicals, materials, herbal/botanicals); and by segment, including fuel (transport, mechanical, etc.), energy (heat, electricity), material (plastics, resins), chemical (alcohols, solvents, acids, surfactants, etc.), and herbal/botanical (drugs, body care, aroma, etc.)
- Forecasts for biomass conversion processes and equipment to produce fuels, power, and chemicals from biomass
- Evaluations of the prospects for biorefineries built on different "platforms," such as the "sugar platform," based on fermentation of sugars extracted from biomass feedstocks, versus the "syngas platform," based on thermochemical conversion processes
- Detailed patent analysis and a research-and-development update
- Profiles of major players in the industry

Report Scope

This research report quantifies the two categories of energetic and non-energetic bioproducts into seven major product segments: bio-derived chemicals, biofuels, pharmaceuticals (biodrugs and herbal/botanicals), biocomposite materials, biopolymers/bioplastics, biogas and biopower.

- The report is divided in 14 chapters. Chapter Two contains the demand by category with forecast to 2021.
- Chapter Three presents an overview that defines and quantifies biorefinery products and assesses market trends and categories/segments with a forecast to 2021.
- Chapter Four presents the history, opportunity and penetration of bio-products with a forecast to 2021.
- Chapter Five presents the demand for energetic bioproducts and analyzes the market for biofuels, biogas and wood pellets, with regional breakdowns and forecasts to 2021.
- Chapter Six presents the demand for non-energetic bioproducts and analyzes the market for chemicals, pharmaceuticals and biomaterials. These are quantified by type, with regional breakdowns and forecasts to 2021.
- Chapter Seven considers the applications of bioproducts and quantifies the demand in up to 11 key markets, and offers forecasts to 2021.
- Chapter Eight considers the technology and quantifies demand by type of technology used for the conversion of biomass to bioproducts, and offers forecasts to 2021.
- Chapter Nine presents the product development in the chemical, pharmaceutical, materials, power and fuel sectors, which will enable utilization of the 170 billion tons of biomass that Earth's biology produces every year.
- Chapter Ten presents an analysis of the industry structure, showing how each market segment will interact over the next five years to 2021, including the macroeconomic factors that affect the global economy.
- Chapter Eleven presents the international aspects, including market leadership. It also quantifies international trade in bioproducts with a forecast to 2021.
- Chapter Twelve presents the market shares of the major companies involved in the manufacture of biobased products, and discussed these companies and products.
- Chapter Fourteen presents company product profiles and identifies the various companies involved in the manufacture of these products.
- Chapter Fifteen analyzes the regulatory environment of the biorefinery industry.

Contents:

1: Introduction

- Study Goal And Objectives
- Reasons For Doing The Study
- Intended Audience
2: Summary

- Table Summary: Global Market For Bioproducts By Category, Through 2021
- Figure Summary: Global Market For Bioproducts By Category, 2013-2021

3: Overview

- Global Size Of Identified Markets Where Bioproducts Are Applied
- Global Size Of Identified Energetic Markets Where Bioproducts Are Applied By Segment
- Global Size Of Identified Non-Energetic Markets Where Bioproducts Are Applied By Segment
- Global Biomass Market Overview
- Overview Of Demand For Non-Food Biomass
- Overview Of Global Biomass Demand By Use
- Global Size Of Identified Markets Where Bioproducts Are Applied Vs. Global Gdp
- Overview Of Biobased Replacement Of Petro-Based Products
- Bioproducts-Oriented Value Chain Overview
- Where Bio-Derived Products Fit In The Global Economy
- Important Indications For The Bio-Derived Products Industry
- Global Investment Biorefining Industry
- Table 1: Biobased Products Cascading Pyramid By Sector
- Table 2: Increasing Value Of Herbal Products With Processing And Standardization Along The Cascading Pyramid
- Table 3: Categorization And Segmentation Of Bioproducts
- Table 4: Comparative Production Of Platform And High Value Compounds Based On Petrochemical (Black Carbon) And Biomass (Green Carbon) Feedstocks
- Table 5: Economic, Environmental And Health Benefits Of Bioproducts

4: History And Market Penetration Of Bio-Products

- History
- Bioproducts Market Opportunity
- Bioproducts Market Penetration

5: Demand For Energetic Bioproducts

- Global Demand For Energetic Bioproduct By Physical State/Type
- Global Demand For Energetic Liquid Bioproduct By Generation
- Global Demand For Energetic First-Generation Liquid Bioproducts
- Global Demand For Energetic Advanced Liquid Bioproducts
- Global Advanced Energetic Liquid Production By Geography
- First-Generation And Advanced Energetic Liquid Bioproducts Production Per Unit Of Land Area
- U.S. Environmental Protection Agency’S (Epa’S) Final Rule
- National Biofuel Blend Wall
- Global Demand For Plant Oil Biofuel
- Solid Energetic Bioproducts
- Gaseous Energetic Bioproducts
- Table 25: Bioenergetic Processes, Biofuel Types And Feedstock Sources

6: Demand For Non-Energetic Bioproducts

- Bio-Derived Chemicals
- Global Market For Bio-Derived Chemicals By Region
- Biodrugs And Herbals/Botanicals
- Global Demand For Biodrugs And Herbals/Botanicals By Region
- Bioplastics/Biopolymers
- Global Production Capacity For Biobased, Potentially Biobased And Biodegradable Plastics By Region
- Demand For Biobased Composites By Region
- Table 45: Non-Bioenergetic Processes, Material Types And Feedstock Sources
- Table 46: Global Market For Non-Energetic Bioproducts By Product Group, Through 2021

7: Applications
8: Technology
- Demand For Bioproducts By Type Of Technology Generation
- Demand For Bioproducts By Type Of Conversion Technology
- Patent Evaluation
- Table 73: Bio-Derived Products Technology Generations Matrix By Feedstock

9: Product Development
- Biofuel Product Development
- Biobased Chemical Product Development
- Biobased Plastics/Polymers Product Development
- Biocomposites Product Development
- Biobased Medicine/Healthcare Product Development
- Biogas Product Development
- Wood Pellets/Chips/Logs Product Development

10: Industry Structure And Competitive Rates
- Introduction
- Biorefinery Industry Activity Sectors
- Economics Of Biorefineries
- Pathways For The Provision Of Biobased Products
- Value Addition/Creation/Unlocking Through Feedstock Control
- Sales, Distribution And Supporting Industries
- Employment, Working Conditions And Economic Impact
- Major Trends

11: International Aspects
- Global Commodity Prices
- Global Population
- Global R&D Spending In Countries With Strong Biorefining Industries
- International Currency Exchange Rates
- International Trade In Key Bioproducts

12: Company Market Shares
- Bioethanol
- Biodiesel
- Glycerol
- Biotechnology Company Shares
- Chemicals And Materials
- Hydroprocessed Esters And Fatty Acids (Hefa)
- Bio-Oil Production
- Market Shares Of Essential Oils Companies
- Pharmaceutical Company Market Shares
- Advanced Biofuel Market Shares
- Biopolymer/Bioplastics
- Pellets
- Commercial Cellulosic Biofuel Company Shares

13: Regulations, Legislation, Mandates, Policies And Incentives
- Introduction
- Regulations And Legislation
- Mandates And Support Policies
- Key Policy Instruments In Selected Countries
- Government Subsidies, Including Mandates, For Liquid Biofuels Used In Transportation For Top Biofuel-Producing Countries
- Instruments And Approaches For The Sound Management Of Chemicals And Materials
- Stakeholder Initiatives

14: Company Profiles

- Biorefineries
- Biofuels
- Chemicals
- Biogas
- Materials
- Biopolymers
- Biocomposites
- Biopower
- Seeds
- Bio Drugs And Herbals/Botanicals
- Medicine And Healthcare

List Of Tables

Summary Table : Global Market For Bioproducts By Category, Through 2021
Table 1 : Biobased Products Cascading Pyramid By Sector
Table 2 : Increasing Value Of Herbal Products With Processing And Standardization Along The Cascading Pyramid
Table 3 : Categorization And Segmentation Of Bioproducts
Table 4 : Comparative Production Of Platform And High Value Compounds Based On Petrochemical (Black Carbon) And Biomass (Green Carbon) Feedstocks
Table 5 : Economic, Environmental And Health Benefits Of Bioproducts
Table 6 : Global Market For Bioproducts By Product, Through 2021
Table 7 : Global Market For Bioproducts By Energetic Products, Through 2021
Table 8 : Global Market For Bioproducts By Non-Energetic Products, Through 2021
Table 9 : Global Market Volume For Biomass By Use, Through 2021
Table 10 : Global Market Volume For Non-Food Biomass Demand By Use, Through 2021
Table 11 : Global Market For Biomass Demand By Type, Through 2021
Table 12 : Global Biorefinery Technologies Market Penetration, Through 2021
Table 13 : Global Bioproducts Market Vs. Global Gdp, Through 2021
Table 14 : Biobased Industry Growth Compared To Global Economy Growth
Table 15 : Overview Of Petroleum Raw Materials Replaced With Biobased Raw Materials
Table 16 : Description Of Bioproducts Market Segments
Table 17 : Direct And Indirect Jobs In Biorefining Worldwide, By Industry Sector, 2015
Table 18 : Major Topics Currently Being Explored For Synthetic Biology Applications
Table 19 : Important Indications For The Bio-Derived Products Industry
Table 20 : Global Market Trends For Investment In Biorefining, 2008-2016
Table 21 : Global Biobased Petroleum Replacement Market Opportunity, Through 2021
Table 22 : Global Bioproducts Market Penetration By Segment, Through 2021
Table 23 : Global Energetic Bioproducts Market Penetration, Through 2021
Table 24 : Global Non-Energetic Bioproducts Market Penetration, Through 2021
Table 25 : Bioenergetic Processes, Biofuel Types And Feedstock Sources
Table 26 : Global Market For Energetic Bioproduct By Physical Segment, Through 2021
Table 27 : Global Market Volume For Energetic Liquid Bioproduct By Generation, Through 2021
Table 28 : Global Market Volume For Energetic First-Generation Liquid Bioproducts By Type, Through 2021
Table 29 : Yearly Rfs2 Program Biofuel Requirements By Type, 2006-2022
Table 30 : Global Market Volume For Advanced Energetic Liquid Production By Type, Through 2021
Table 31 : Global Market Volume For Advanced Energetic Liquid Production By Region, Through 2021
Table 32 : Production Of Biofuel And Bioenergy Per Unit Of Land Area
Table 33 : Epa's Final Volume Requirements Under The Renewable Fuel Standard Program, Through 2017
Table 34 : Common Gasoline Ethanol And Biodiesel Diesel Blends Available In Various Countries
Table 35 : National And State/Provincial Biofuel Blend Mandate
Table 36 : Global Market Volume For Plant Oil Biofuels By Type, Through 2021
Table 37 : Global Market For Solid Energetic Bioproducts By Type, Through 2021
Table 38 : Global Market For Pellets, Woody Chips And Briquettes (Pwb) By Region, Through 2021
Table 39 : Global Consumption Of Pellets, Woody Chips And Briquettes (Pwb) By Region, Through 2021
Table 40 : Properties Of Torrefied Wood And Charcoal
Table 41 : Global Market For Charcoal, Industrial And Municipal Solid Waste (Cimsw) By Region, Through
2021
Table 42: Biogas Composition From Different Feedstocks
Table 43: Global Market For Gaseous Energetic Bioproducts By Type, Through 2021
Table 44: Global Demand For Gaseous Energetic Bioproducts By Region, Through 2021
Table 45: Non-Bioenergetic Processes, Material Types And Feedstock Sources
Table 46: Global Market For Non-Energetic Bioproducts By Product Group, Through 2021
Table 47: Global Market For Bioderived Chemicals By Sector, Through 2021
Table 48: Global Market For Biotransform Platform Chemicals By Type, Through 2021
Table 49: Global Market For Fermentation-Derived Fine Chemicals (Excluding Biofuels And Biopolymers), Through 2021
Table 50: Global Market For Bioderived Fine (Specialty) Chemicals By Category, Through 2021
Table 51: Global Bio-Derived Fine (Specialty) Chemicals Demand By Type, Through 2021
Table 52: Global Market For Pharmaceutical Ingredients Production Using Biotransformation By Type, Through 2021
Table 53: Phytochemicals Used As Pharmaceutical Additives/Ingredients
Table 54: List Of Phytochemicals Used For Cosmetic Purposes
Table 55: Global Market For Bioproducts Used As Phytochemicals By Type, Through 2021
Table 56: Global Market For Bio-Derived Chemicals By Region, Through 2021
Table 57: Global Market For Biodrugs And Herbals/Botanicals, Through 2021
Table 58: Pharmacognosy Of The Top 10 Medicinal Plants
Table 59: Global Market For Herbal Drugs/Dietary Supplements By Product, Through 2021
Table 60: Global Market For Botanical Dietary Supplements By Product, Through 2021
Table 61: Global Market For Anti-Body Biodrugs By Type, Through 2021
Table 62: Global Market For Biodrugs And Herbals/Botanicals By Region, Through 2021
Table 63: Global Market For Bioplastics By Compostability, Through 2021
Table 64: Current And Emerging Partially Biobased Plastics And Their Biodegradability
Table 65: Global Market For Biopolymer/Bioplastics By Conversion Route, Through 2021
Table 66: Global Production Capacity For Biobased, Potentially Biobased And Biodegradable Plastics, Through 2021
Table 67: Global Production Capacity For Biobased, Potentially Biobased And Biodegradable Plastics By Region, Through 2021
Table 68: Global Market For Biobased Composites By Type, Through 2021
Table 69: Major Natural Fibers Producer Companies
Table 70: Global Market For Natural Fibers Composites By Region, Through 2021
Table 71: Process Flow Of Biomass Feedstocks To Biobased Products To Market Applications
Table 72: Global Market For Bioproduct Applications By End Use, Through 2021
Table 73: Bio-Derived Products Technology Generations Matrix By Feedstock
Table 74: Global Market For Bio-Derived Products By Technology Generation, Through 2021
Table 75: Conversion Technologies
Table 76: Global Market For Biorefinery By Type Of Technology Platform, Through 2021
Table 77: Global Market For Bioproducts By Technology Platform, Through 2021
Table 78: Product Technology Development
Table 79: Number Of Registered Biorefinery Patents Per Year, Through 2016
Table 80: Biofuel Product Development
Table 81: Biobased Chemicals Product Development
Table 82: Biobased Plastics/Polymers Product Development
Table 83: Biocomposite Product Development
Table 84: Biobased Medicine/Health Product Development
Table 85: Biogas Segment Product Development
Table 86: Wood Pellets/Chips/Logs/Waste-To-Energy Product Development
Table 87: Biorefinery Industry Structure And Value-Added Activities
Table 88: Biorefinery Industry Activity Sectors
Table 89: Economics Of Building Biorefineries
Table 90: Basic Pathways For The Provision Of Derived-Products From Biomass
Table 91: Upstream Advanced Biorefinery Value Chain
Table 92: Midstream Advanced Biorefinery Value Chain
Table 93: Companies Involved In Value Unlocking (Residues)
Table 94: Companies Chasing Value Creation (New Feedstock/Products)
Table 95: Companies Involved In Value Adding (Existing Feedstocks)
Table 96: Downstream Advanced Biorefinery Value Chain
Table 97: Costing And Pricing In A Bioproducts Value Chain
Table 98: Number Of Jobs In Bio-Derived Products Industry By Region, Through 2021
Table 99: Employment Positions In Bio-Derived Products Industry
Table 100 : Economic Impact Of A 10 Million Gallon Biodiesel Plant In The U.S. -
Table 101 : The Multidisciplinary, Multi-Company Biorefinery Landscape
Table 102 : Number Of Biogreen Technology Strategic Investors Between 2013-2016
Table 103 : Major Blue-Chip Company Strategic Partnerships
Table 104 : Companies With Significant Chemical Industry Partnerships
Table 105 : Strategic Joint Ventures And Their Products
Table 106 : Strategic Alliances In Biobased Chemicals
Table 107 : Network Of Strategic Alliances
Table 108 : Commodity Prices, Through 2021
Table 109 : Global Population By Region, Through 2021
Table 110 : Global R&D Spending In Countries With Strong Biorefining Industries, 2014-2016
Table 111 : Leading Countries In Key Technology Areas Where Biorefining Products Are Applied, 2016
Table 112 : Yearly Average Exchange Rates For Converting Foreign Currencies Into U.S. Dollars -
Table 113 : International Bioethanol Trade By Exporting Country, Through 2021
Table 114 : International Biodiesel Trade By Major Exporting Country, Through 2021
Table 115 : International Oilseed Export Trade By Type, Through 2021
Table 116 : International Oilseed Trade By Major Exporting Country, Through 2021
Table 117 : International Vegetable Oil Export Trade By Type, Through 2021
Table 118 : International Vegetable Oil Trade By Major Export Country, Through 2021
Table 119 : International Grain Export Trade By Type, Through 2021
Table 120 : International Grain Trade By Major Export Country, Through 2021
Table 121 : Global Exports Of Wood Pellets By Major Producer, Through 2021
Table 122 : Global Exports Of Botanical Raw Materials, Extracts And Essential Oils By Major Producer, Through 2021
Table 123 : Global Market Shares For Conventional Bioethanol By Capacity, 2015
Table 124 : Global Market Shares For Conventional Biodiesel, 2015
Table 125 : Glycerol Company Market Shares, 2015
Table 126 : Industrial Biotechnology Company Market Shares, 2015
Table 127 : Chemicals And Materials Company Market Shares Based On Sales, 2015
Table 128 : Global Shares For Hydroprocessed Esters And Fatty Acids (Hefa) "Drop-In" Biofuels, 2015
Table 129 : Global Shares For Bio-Oil Production Companies, 2016
Table 130 : Top 11 Flavor And Fragrance Company Market Shares, 2016
Table 131 : Top 10 Pharmaceutical Companies By Prescription And Over-The-Counter Shares, 2016
Table 132 : Examples Of Global Market Shares For Advanced Bioproducts, Through 2018
Table 133 : Advanced Bioproducts Capacity In Asia, Through 2018
Table 134 : Producers Of Biobased, Potentially Biobased And Biodegradable Plastics, Through 2018
Table 135 : Market Shares Of Global Pellet Companies, 2015
Table 136 : Market Shares Of Commercial Cellulosic Biofuel Companies, 2016
Table 137 : Policies And Legislation Affecting The Bio-Derived Products Industry
Table 138 : Regulations And Legislation Affecting The Bio-Derived Industry
Table 139 : Countries With Renewable Policies, Through 2012
Table 140 : U.S. Biofuels Targets Mandated By Eisa
Table 141 : Mandates Currently In Place By Country
Table 142 : Ethanol Blend Mandates For Major Countries
Table 143 : Key Policy Instruments In Selected Countries
Table 144 : Estimates Of Eu-28 Government Subsidies, Including Mandates, For Liquid Biofuels Used In Transportation
Table 145 : North America Government Subsidies, Including Mandates, For Liquid Biofuels Used In Transportation
Table 146 : Asian Government Subsidies, Including Mandates, For Liquid Biofuels Used In Transportation
Table 147 : South America Government Subsidies, Including Mandates, For Liquid Biofuels Used In Transportation
Table 148 : Country Of Origin Of Biofuel Companies In Africa
Table 149 : Chemical Initiatives And Regulations Supporting Biobased Chemicals
Table 150 : National Instruments And Programs For The Sound Management Of Chemicals And Materials
Table 151 : Economic Instruments For Sound Management Of Chemicals
Table 152 : Methods And Tools Developed By Corporations For Chemical Hazard Assessment And Identification Of Preferred Chemicals And Products
Table 153 : Methods And Tools Developed By Csos And Ngos For Chemical Hazard Assessment And Chemical And Product Prioritization
Table 154 : Stakeholder Initiatives For Biobased Products

List Of Figures
Summary Figure: Global Market For Bioproducts By Category, 2013-2021
Figure 1: Bioproducts-Oriented Value Chain
Figure 2: Applications Of Biotechnology In Anthropogenic Activities
Figure 3: Opportunities For Biobased Products Based On H/C Ratio

Ordering:
Order Online - http://www.researchandmarkets.com/reports/4116375/
Order by Fax - using the form below
Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

Product Name: Biorefinery Products: Global Markets
Web Address: http://www.researchandmarkets.com/reports/4116375/
Office Code: SC2G954L

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>USD 6650</th>
<th>USD 8500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single User:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic (PDF) -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 5 Users:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The price quoted above is only valid for 30 days. Please submit your order within that time frame to avail of this price as all prices are subject to change.

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title: Mr [ ] Mrs [ ] Dr [ ] Miss [ ] Ms [ ] Prof [ ]
First Name: ___________________________ Last Name: ___________________________
Email Address: *
Job Title: ___________________________
Organisation: _______________________
Address: ___________________________
City: _______________________________
Postal / Zip Code: ___________________
Country: ___________________________
Phone Number: ______________________
Fax Number: _________________________

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:

Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: _______________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World