

Bio-Based & Biodegradable Advanced Materials Market Forecasts to 2034 - Global Analysis By Material Type (Bio-Based Polymers, Biodegradable Polymers, Bio-Composites and Bio-Based Chemicals & Additives), Application, End User and By Geography

<https://marketpublishers.com/r/B70CD5A80824EN.html>

Date: September 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: B70CD5A80824EN

Abstracts

According to Statistics MRC, the Global Bio-Based & Biodegradable Advanced Materials Market is accounted for \$53.0 billion in 2026 and is expected to reach \$91.0 billion by 2034 growing at a CAGR of 7.0% during the forecast period. Bio-Based & Biodegradable Advanced Materials represent a class of sustainable materials produced from renewable biological sources and engineered to minimize environmental impact. This category encompasses bio-based polymers, natural-fiber composites, biodegradable materials, and other environmentally oriented formulations. They are increasingly developed for packaging, transportation, construction, healthcare, agriculture, and consumer applications. Key characteristics include renewable sourcing, biodegradability, resource efficiency, recyclability, and reduced reliance on fossil resources. Ongoing material innovation seeks to achieve sustainability objectives while preserving the strength, durability, thermal stability, and chemical performance demanded by advanced applications.

According to European Bioplastics, global biobased plastics production capacity is projected to increase from 2.31 million tonnes in 2025 to about 4.69 million tonnes by 2030, more than doubling in five years.

Market Dynamics:

Driver:

Rising demand for sustainable materials

Increasing preference for environmentally sustainable materials is supporting the growth of the Bio-Based & Biodegradable Advanced Materials Market. Manufacturers are exploring renewable and biodegradable alternatives to conventional petroleum-derived materials as sustainability becomes more important across industries. Demand is expanding in packaging, transportation, construction, agriculture, and consumer products. Businesses are increasingly considering renewable feedstocks and lower-impact materials during product development. This trend is encouraging innovation in bio-based polymers, natural-fiber composites, and biodegradable formulations designed to reduce fossil-resource dependence while delivering suitable performance for industrial and commercial applications.

Restraint:

High production costs

Elevated manufacturing expenses can restrict the expansion of the Bio-Based & Biodegradable Advanced Materials Market. Certain renewable feedstocks, specialized production processes, and limited economies of scale can make these materials more expensive than conventional fossil-based alternatives. Manufacturers may also face additional costs associated with processing equipment, formulation development, testing, and quality assurance. Such expenses can discourage adoption where purchasing decisions strongly emphasize cost. Furthermore, investments required for dedicated production infrastructure and process improvements can create financial challenges during commercialization and broader industrial deployment.

Opportunity:

Expansion of sustainable packaging applications

Growing adoption of sustainable packaging is creating significant opportunities for Bio-Based & Biodegradable Advanced Materials. Packaging producers are increasingly exploring renewable polymers, biodegradable films, coatings, and natural-fiber solutions as alternatives to conventional plastic materials. Applications are expanding across food and beverages, cosmetics, personal care, consumer products, and e-commerce. Advances in material formulation can improve strength, barrier performance, shelf-life protection, and manufacturing compatibility. These developments can enable bio-based and biodegradable materials to address diverse packaging requirements while supporting reduced dependence on fossil-derived packaging materials.

Threat:

Competition from conventional and alternative materials

Competition from established fossil-based materials and emerging sustainable alternatives represents a potential threat to Bio-Based & Biodegradable Advanced Materials. Conventional plastics and synthetic materials have extensive manufacturing networks, established processing systems, economies of scale, and predictable performance. These advantages can encourage manufacturers to retain existing materials when affordability, durability, and production efficiency are priorities. Meanwhile, recycled materials and other environmentally focused technologies are increasing competitive options. Such market competition may create challenges for expanding the adoption and commercial penetration of bio-based and biodegradable solutions.

Covid-19 Impact:

The COVID-19 outbreak created both challenges and opportunities for the Bio-Based & Biodegradable Advanced Materials Market. Factory closures, logistics restrictions, trade disruptions, and shortages of raw materials interrupted manufacturing and distribution activities. Demand from automotive, construction, and consumer industries declined during periods of economic restrictions. Conversely, increased emphasis on healthcare products, hygiene applications, sustainable packaging, and resilient sourcing encouraged interest in environmentally preferable materials. With the gradual reopening of economies, industrial production recovered, while sustainability programs and demand for responsible materials helped strengthen market development.

The bio-based polymers segment is expected to be the largest during the forecast period

The bio-based polymers segment is expected to account for the largest market share during the forecast period, supported by their versatility and extensive industrial applications. Manufactured using renewable biological resources, these polymers offer alternatives to traditional fossil-based materials while maintaining useful functional characteristics. They are utilized in packaging, transportation, consumer goods, agriculture, healthcare, textiles, and various industrial applications. Ongoing innovations in formulations, processing methods, and performance characteristics are increasing their applicability, enabling bio-based polymers to address requirements for sustainability, durability, flexibility, and environmentally responsible material solutions.

The healthcare & pharmaceuticals segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the healthcare & pharmaceuticals segment is predicted to witness the highest growth rate as demand increases for sustainable healthcare materials. These materials are finding opportunities in pharmaceutical packaging, drug delivery, medical disposables, implants, wound-care products, and other specialized healthcare applications. Their ability to offer renewable sourcing alongside functional and biodegradable characteristics is supporting research and commercialization. Advancements in medical polymers, biomaterials, and sustainable healthcare technologies are further broadening application possibilities and encouraging greater adoption across healthcare-related industries.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, driven by its large-scale manufacturing ecosystem, industrial expansion, and established bioplastics production capabilities. Diverse industries, including packaging, automotive, electronics, agriculture, and consumer products, contribute to regional utilization of sustainable materials. Growing investment in renewable material technologies and increasing application opportunities are further supporting market development. According to European Bioplastics, Asia continues to serve as a major global production center for bioplastics, highlighting its significant position in this industry.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rising production capabilities and broader industrial utilization of bioplastics. Expanding applications across packaging, automotive, agriculture, electronics, and consumer products are supporting regional demand. Investments in bio-based polymers and biodegradable technologies are further accelerating development. According to European Bioplastics, Asia was expected to surpass 70% of global bioplastics production capacity by 2026, demonstrating the region's substantial growth momentum.

Key players in the market

Some of the key players in Bio-Based & Biodegradable Advanced Materials Market include ADBioplastics, Ahlstrom-Munksjo, Arkema, Avantium N.V., BASF, Biome Bioplastics, Braskem, Carbios, Danimer Scientific, Eastman Chemical Company, FKuR Kunststoff, Green Dot Bioplastics Inc., Kaneka Corporation, Mitsubishi Chemical Group, NatureWorks, Novamont, Plantic Technologies Ltd. and TotalEnergies Corbion.

Key Developments:

In January 2026, Eastman and Kolmar Korea signed a memorandum of understanding aimed at advancing innovative, biodegradable and high-performing personal care solutions that can help customers meet sustainability goals. The collaboration will focus on expanding access to Eastman's groundbreaking Esmeri technology, which includes Esmeri CC1N10, an advanced cellulose ester micropowder for color cosmetics.

In September 2025, Mitsubishi Chemical Corporation has officially announced that it has entered into an Agreement on Coordination and Cooperation for the Maintenance and Development of the Yokkaichi Industrial Complex. This agreement, involves three parties—Mitsubishi Chemical, Mie Prefecture, and Yokkaichi City.

Material Types Covered:

Bio-Based Polymers

Biodegradable Polymers

Bio-Composites

Bio-Based Chemicals & Additives

Applications Covered:

Packaging

Textiles & Fibers

Automotive & Transportation

Consumer Goods

Agriculture

Medical & Healthcare

Construction

End Users Covered:

Food & Beverage

Retail & E-Commerce

Automotive & Aerospace

Healthcare & Pharmaceuticals

Agriculture & Horticulture

Building & Construction

Consumer Electronics

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL BIO-BASED & BIODEGRADABLE ADVANCED MATERIALS MARKET, BY MATERIAL TYPE

- 5.1 Bio-Based Polymers
- 5.2 Biodegradable Polymers
- 5.3 Bio-Composites
- 5.4 Bio-Based Chemicals & Additives

6 GLOBAL BIO-BASED & BIODEGRADABLE ADVANCED MATERIALS MARKET, BY APPLICATION

- 6.1 Packaging
- 6.2 Textiles & Fibers
- 6.3 Automotive & Transportation
- 6.4 Consumer Goods
- 6.5 Agriculture
- 6.6 Medical & Healthcare
- 6.7 Construction

7 GLOBAL BIO-BASED & BIODEGRADABLE ADVANCED MATERIALS MARKET, BY END USER

- 7.1 Food & Beverage
- 7.2 Retail & E-Commerce
- 7.3 Automotive & Aerospace
- 7.4 Healthcare & Pharmaceuticals
- 7.5 Agriculture & Horticulture
- 7.6 Building & Construction
- 7.7 Consumer Electronics

8 GLOBAL BIO-BASED & BIODEGRADABLE ADVANCED MATERIALS MARKET, BY GEOGRAPHY

- 8.1 North America
 - 8.1.1 United States

- 8.1.2 Canada
- 8.1.3 Mexico
- 8.2 Europe
 - 8.2.1 United Kingdom
 - 8.2.2 Germany
 - 8.2.3 France
 - 8.2.4 Italy
 - 8.2.5 Spain
 - 8.2.6 Netherlands
 - 8.2.7 Belgium
 - 8.2.8 Sweden
 - 8.2.9 Switzerland
 - 8.2.10 Poland
 - 8.2.11 Rest of Europe
- 8.3 Asia Pacific
 - 8.3.1 China
 - 8.3.2 Japan
 - 8.3.3 India
 - 8.3.4 South Korea
 - 8.3.5 Australia
 - 8.3.6 Indonesia
 - 8.3.7 Thailand
 - 8.3.8 Malaysia
 - 8.3.9 Singapore
 - 8.3.10 Vietnam
 - 8.3.11 Rest of Asia Pacific
- 8.4 South America
 - 8.4.1 Brazil
 - 8.4.2 Argentina
 - 8.4.3 Colombia
 - 8.4.4 Chile
 - 8.4.5 Peru
 - 8.4.6 Rest of South America
- 8.5 Rest of the World (RoW)
 - 8.5.1 Middle East
 - 8.5.1.1 Saudi Arabia
 - 8.5.1.2 United Arab Emirates
 - 8.5.1.3 Qatar
 - 8.5.1.4 Israel

8.5.1.5 Rest of Middle East

8.5.2 Africa

8.5.2.1 South Africa

8.5.2.2 Egypt

8.5.2.3 Morocco

8.5.2.4 Rest of Africa

9 STRATEGIC MARKET INTELLIGENCE

9.1 Industry Value Network and Supply Chain Assessment

9.2 White-Space and Opportunity Mapping

9.3 Product Evolution and Market Life Cycle Analysis

9.4 Channel, Distributor, and Go-to-Market Assessment

10 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

10.1 Mergers and Acquisitions

10.2 Partnerships, Alliances, and Joint Ventures

10.3 New Product Launches and Certifications

10.4 Capacity Expansion and Investments

10.5 Other Strategic Initiatives

11 COMPANY PROFILES

11.1 ADBioplastics

11.2 Ahlstrom-Munksjo

11.3 Arkema

11.4 Avantium N.V.

11.5 BASF

11.6 Biome Bioplastics

11.7 Braskem

11.8 Carbios

11.9 Danimer Scientific

11.10 Eastman Chemical Company

11.11 FKuR Kunststoff

11.12 Green Dot Bioplastics Inc.

11.13 Kaneka Corporation

11.14 Mitsubishi Chemical Group

11.15 NatureWorks

11.16 Novamont

11.17 Plantic Technologies Ltd.

11.18 TotalEnergies Corbion

List of Tables

Table 1 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Material Type (2023-2034) (\$MN)

Table 3 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Bio-Based Polymers (2023-2034) (\$MN)

Table 4 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Biodegradable Polymers (2023-2034) (\$MN)

Table 5 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Bio-Composites (2023-2034) (\$MN)

Table 6 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Bio-Based Chemicals & Additives (2023-2034) (\$MN)

Table 7 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Application (2023-2034) (\$MN)

Table 8 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Packaging (2023-2034) (\$MN)

Table 9 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Textiles & Fibers (2023-2034) (\$MN)

Table 10 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Automotive & Transportation (2023-2034) (\$MN)

Table 11 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Consumer Goods (2023-2034) (\$MN)

Table 12 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Agriculture (2023-2034) (\$MN)

Table 13 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Medical & Healthcare (2023-2034) (\$MN)

Table 14 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Construction (2023-2034) (\$MN)

Table 15 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By End User (2023-2034) (\$MN)

Table 16 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Food & Beverage (2023-2034) (\$MN)

Table 17 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Retail & E-Commerce (2023-2034) (\$MN)

Table 18 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By

Automotive & Aerospace (2023-2034) (\$MN)

Table 19 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Healthcare & Pharmaceuticals (2023-2034) (\$MN)

Table 20 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Agriculture & Horticulture (2023-2034) (\$MN)

Table 21 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Building & Construction (2023-2034) (\$MN)

Table 22 Global Bio-Based & Biodegradable Advanced Materials Market Outlook, By Consumer Electronics (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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