

Bio-Based Polymers & Plastics Market Forecasts to 2032 – Global Analysis By Polymer Type (Polylactic Acid (PLA), Polyhydroxyalkanoates (PHA), Starch Blends, Bio-PET, Bio-PE, Bio-PBS and Other Polymer Types), Feedstock, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Bio-Based Polymers & Plastics Market is accounted for \$8.32 billion in 2025 and is expected to reach \$14.93 billion by 2032 growing at a CAGR of 8.7% during the forecast period. Bio-based polymers and plastics are eco-friendly materials produced from renewable resources like plants, algae, and microbes, serving as alternatives to traditional petroleum-based plastics. They contribute to lowering environmental impact and greenhouse gas emissions while maintaining performance in sectors such as packaging, automotive, and healthcare. Emerging bioplastics, such as polylactic acid (PLA) and polyhydroxyalkanoates (PHA), are enhancing their industrial application. The adoption of circular economy strategies, together with supportive government policies, is boosting development and market penetration. Growing consumer preference for sustainable solutions, along with industrial investments in green materials, positions bio-based polymers and plastics for substantial expansion in the worldwide market.

According to the European Bioplastics Association (EUBP), global biobased plastics production capacity is projected to double from 2.31 million tonnes in 2025 to approximately 4.69 million tonnes by 2030, representing about 0.5% of the 431 million tonnes of plastics produced annually worldwide.

Market Dynamics:

Driver:

Growing consumer demand for sustainable products

Rising consumer demand for eco-friendly and sustainable products is driving growth in the bio-based polymers and plastics market. Heightened awareness of environmental challenges motivates customers to prefer items made from renewable sources. In response, companies are increasingly using bioplastics in packaging, personal care, and household items. Retail and e-commerce platforms are adopting green packaging, while consumers' readiness to pay more for sustainable products encourages manufacturers to scale production. This trend is fostering innovation in bio-based materials and promoting wider industrial adoption, positioning bio-based polymers and plastics as a preferred and mainstream alternative to conventional plastics globally.

Restraint:

High production costs

Bio-based polymers and plastics face limitations due to their higher production costs compared to traditional petroleum-based alternatives. Expensive raw materials like corn, sugarcane, and other biomass, coupled with specialized processing and fermentation techniques, elevate manufacturing expenses. This cost factor can make bioplastics less attractive in markets sensitive to price, slowing large-scale adoption. Although technological improvements and scaling production may lower expenses over time, the initial investment and operational costs remain significant obstacles, restricting the overall growth potential of the global bio-based polymers and plastics market.

Opportunity:

Rising demand for biodegradable packaging

The global push for sustainable packaging is creating substantial growth opportunities for bio-based polymers and plastics. Rising environmental awareness among consumers, businesses, and governments is driving demand for biodegradable and compostable packaging to reduce plastic waste and emissions. Sectors like food and beverage, e-commerce, and personal care are rapidly incorporating bioplastics in their packaging solutions. Advances in technology have enhanced material durability, flexibility, and barrier performance, making them competitive with traditional plastics.

Supportive regulations and increasing consumer preference for eco-friendly products are further boosting market prospects, positioning bio-based polymers and plastics as a leading choice for sustainable packaging worldwide.

Threat:

Competition from conventional plastics

The bio-based polymers and plastics market is challenged by the strong presence of conventional petroleum-based plastics, which are cost-efficient, widely available, and deeply integrated across industries. Despite sustainability advantages, higher production costs and performance limitations in specific applications make bioplastics less competitive. Established supply chains and manufacturing practices favor traditional plastics, while industries may be reluctant to transition due to concerns about durability and consistency. This competitive landscape poses a significant threat, potentially restricting the pace of adoption and the global growth potential of bio-based polymers and plastics.

Covid-19 Impact:

The COVID-19 outbreak impacted the bio-based polymers and plastics market by disrupting supply chains, reducing industrial output, and altering consumer behaviour. Lockdowns and mobility restrictions affected biomass feedstock supply and delayed production and distribution processes. Key sectors, including automotive, electronics, and construction, faced reduced demand, slowing the use of bio-based plastics. However, the crisis boosted demand for sustainable and hygienic packaging in healthcare, food, and e-commerce industries. While the pandemic created short-term obstacles, it also emphasized the significance of environmentally friendly materials, prompting strategic adjustments in manufacturing, innovation, and adoption of bio-based polymers and plastics during the post-pandemic recovery period.

The polylactic acid (PLA) segment is expected to be the largest during the forecast period

The polylactic acid (PLA) segment is expected to account for the largest market share during the forecast period, supported by its extensive adoption in packaging, single-use items, textiles, and additive manufacturing. Derived from renewable plant feedstocks like corn and sugarcane, PLA is valued for its biodegradability and reduced environmental impact, aligning well with sustainability mandates and consumer

preference for green materials. Its industrial maturity and broad application base have led to higher production and market absorption compared to other biopolymers. As companies seek alternatives to fossil-based plastics, PLA continues to dominate market share due to its versatile performance and established supply chains.

The waste oils & residues segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the waste oils & residues segment is predicted to witness the highest growth rate. Their appeal lies in transforming agricultural waste, food by-products, and other residues into sustainable input materials, helping reduce dependency on traditional crops such as corn or sugarcane. Advances in conversion technologies, plus stronger policy support for circular economy practices, are accelerating adoption. This shift supports reduced environmental impacts and aligns with industry efforts to improve resource efficiency. Consequently, waste and residue derived feedstock's are rapidly gaining momentum as a high growth segment in the global bio based polymers and plastics market.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, supported by fast industrial growth, large biomass resource availability, and proactive environmental policies. Major economies such as China and India are expanding production facilities and embracing sustainable material usage in key sectors like packaging, textiles, and automotive. Rising consumer demand for eco-friendly products and government incentives for bio based technologies further stimulate regional market expansion. Coupled with strong manufacturing capabilities and continuous innovation, these factors ensure Asia Pacific's leading share in the global bio based polymers and plastics market.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, fueled by strong production expansion, plentiful biomass resources, and favorable policy frameworks. Key countries like China and India are driving demand through increased industrial adoption of sustainable materials in packaging, automotive, and consumer sectors. Policies restricting conventional plastics, combined with incentives for bioplastic manufacturing, boost regional uptake. Growing environmental consciousness and investments in advanced biopolymer technologies further support

rapid expansion. As a result, Asia Pacific stands out as the most rapidly growing region for bio-based polymers and plastics over the projected period.

Key players in the market

Some of the key players in Bio-Based Polymers & Plastics Market include NatureWorks LLC, Braskem, BASF SE, TotalEnergies Corbion, Novamont SpA, Biome Bioplastics, Mitsubishi Chemical Corporation, Arkema, Danimer Scientific, Dow, PTT Global Chemical, Synbra Technology, Avantium N.V., Versalis S.P.A and Biotec Biologische Naturverpackungen GmbH & Co.

Key Developments:

In November 2025, Mitsubishi Gas Chemical (MGC) has entered into a sales and purchase agreement with Transition Industries (TI) for the offtake of ultra-low carbon methanol. TI is a company developing world-scale methanol and green hydrogen projects designed to achieve carbon neutrality, addressing climate change while promoting environmental and social sustainability.

In July 2025, BASF and Equinor have signed a long-term strategic agreement for the annual delivery of up to 23 terawatt hours of natural gas over a ten-year period. The contract secures a substantial share of BASF's natural gas needs in Europe. This agreement further strengthens our partnership with BASF. Natural gas not only provides energy security to Europe but also critical feedstock to European industries.

In February 2025, NatureWorks is proud to announce the launch of Ingeo 3D300, the company's newest specially engineered 3D printing grade. Designed for faster printing without compromising quality, Ingeo 3D300 sets a new benchmark in additive manufacturing by offering enhanced efficiency and exceptional performance.

Polymer Types Covered:

Polylactic Acid (PLA)

Polyhydroxyalkanoates (PHA)

Starch Blends

Bio-PET

Bio-PE

Bio-PBS

Other Polymer Types

Feedstocks Covered:

Corn

Sugarcane

Cassava

Cellulose

Algae

Waste Oils & Residues

Applications Covered:

Packaging

Automotive Components

Agricultural Films & Inputs

Consumer Products

Textile Fibers & Fabrics

Medical Devices & Biodegradable Implants

Electronic Components

Other Applications

End Users Covered:

Food & Beverage

Retail & E-commerce

Automotive OEMs

Agriculture & Horticulture

Healthcare Providers & Pharma Companies

Electronics & Electrical OEMs

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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 2024, 2025, 2026, 2028, and 2032
- 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

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