

Bio-based and Recycled Materials Market Forecasts to 2034 – Global Analysis By Source (Agricultural Residues, Forestry By-products, Post-consumer Recycled Waste and Industrial Scrap Streams), Material Type, Processing Technology, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Bio-based and Recycled Materials Market is accounted for \$8.0 billion in 2026 and is expected to reach \$47.7 billion by 2034 growing at a CAGR of 25.0% during the forecast period. Materials derived from biological sources and recycled streams are essential to sustainable production systems. Bio-based materials come from renewable resources such as plants, algae, and agricultural residues, reducing dependence on fossil inputs. Recycled materials are obtained from waste that is processed into new usable goods, lowering environmental burden. Together, these materials support circular economy goals by improving resource efficiency and reducing greenhouse gas emissions. They are widely used in packaging, automotive, construction, and textile industries as companies focus on environmentally responsible solutions, regulatory compliance, and long-term ecological balance across global markets driving sustainable development and innovation worldwide across industries globally.

According to the United Nations Environment Programme (UNEP) and data, the world generates about 400 million tonnes of plastic waste every year, yet only around 9% is effectively recycled, highlighting the urgent need for bio-based and recycled material solutions to reduce plastic pollution and environmental damage.

Market Dynamics:

Driver:

Circular economy demand

The growing shift toward circular economy practices is significantly driving demand for bio-based and recycled materials. This economic model emphasizes reducing waste, extending product life cycles, and improving material reuse through recycling and regeneration. Businesses are moving away from traditional linear production systems toward sustainable frameworks that prioritize resource recovery and minimal environmental impact. Support from regulatory bodies, corporate sustainability commitments, and innovation in recycling technologies further accelerates this transition. As a result, industries increasingly require materials that can be reused or safely reintegrated into natural systems, strengthening the adoption of bio-based and recycled solutions across global manufacturing sectors.

Restraint:

Limited raw material availability

A major limitation for the bio-based and recycled materials market is the inconsistent availability of raw materials. Bio-based inputs rely on agricultural production, which fluctuates due to seasonal patterns, weather changes, and competition with food cultivation, restricting steady supply. Likewise, recycled materials are constrained by inefficient waste collection systems, low recycling participation, and contamination issues that reduce usable output. These factors create supply instability and increase sourcing costs for manufacturers. As a result, industries face difficulties in ensuring continuous production, which hampers scalability and slows the expansion of sustainable material usage across global manufacturing sectors across globally markets.

Opportunity:

Technological advancements in material science

Rapid progress in material science and recycling technologies is opening new growth opportunities for the bio-based and recycled materials industry. Innovations like chemical recycling processes, bio-based engineering techniques, and nanotechnology are enhancing material strength, durability, and cost efficiency. These advancements

allow waste materials to be transformed into valuable resources and improve the performance of sustainable alternatives. Automation and artificial intelligence are also optimizing waste sorting and recycling operations. Continuous research and development efforts are reducing production costs, making eco-friendly materials more competitive.

Threat:

High competition from conventional materials

Intense competition from traditional fossil-based materials poses a major challenge to the bio-based and recycled materials sector. Conventional plastics and synthetic products are generally more affordable, readily available, and supported by advanced manufacturing infrastructure. Their established production systems and consistent performance make them preferable for many industries, particularly where cost sensitivity is high. Over time, these materials have also been optimized for efficiency and scalability, strengthening their market dominance. As a result, eco-friendly alternatives face difficulty in achieving widespread adoption. Despite environmental benefits, industries continue to depend on conventional materials due to their economic and operational advantages globally worldwide.

Covid-19 Impact:

The COVID-19 pandemic created both challenges and opportunities for the bio-based and recycled materials market. In the early stages, lockdowns, workforce shortages, and disrupted logistics significantly affected production and recycling operations. Demand from industries like automotive and construction also declined due to reduced economic activity. However, the crisis increased global awareness of environmental issues and the surge in single-use plastic waste, driving higher demand for sustainable packaging, particularly in healthcare and online retail. Governments promoted green recovery initiatives, further supporting the sector. Overall, while short-term disruptions were severe, the pandemic ultimately encouraged long-term adoption of sustainable material solutions worldwide.

The post-consumer recycled waste segment is expected to be the largest during the forecast period

The post-consumer recycled waste segment is expected to account for the largest market share during the forecast period because it is widely accessible and well

integrated into existing waste management systems. It consists of materials collected from residential, commercial, and municipal sources, including plastics, paper, glass, and metals. The segment benefits from stricter environmental regulations, improved recycling infrastructure, and increasing consumer participation in waste segregation. Manufacturers favour these materials as they support sustainability goals and reduce reliance on new raw resources. Additionally, the rapid growth of online shopping and packaging waste generation ensures a steady supply, reinforcing its position as the leading source in the market.

The bio-based polymers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the bio-based polymers segment is predicted to witness the highest growth rate as they increasingly substitute traditional fossil-based plastics. Produced from renewable feedstocks like agricultural crops and plant-based sugars, they are widely used in sustainable manufacturing applications. Rising demand from sectors such as packaging, automotive, and consumer goods is significantly boosting their usage. Their environmentally friendly nature, including lower emissions and biodegradability, aligns well with global sustainability regulations. Ongoing technological advancements are also enhancing their durability and affordability, positioning bio-based polymers as the most rapidly growing segment in the sustainable materials landscape worldwide.

Region with largest share:

During the forecast period, the Europe region is expected to hold the largest market share owing to its robust environmental regulations and proactive sustainability strategies. The region has introduced comprehensive policies focused on reducing plastic waste, promoting recycling, and advancing circular economy practices. Nations like Germany, France, and the Netherlands benefit from efficient waste management systems and high public awareness of environmental issues. Strong policy backing, along with corporate commitment to sustainability goals, encourages the use of eco-friendly materials. Furthermore, the presence of advanced research institutions and innovative companies supports continuous development, positioning Europe as the leading region for sustainable material adoption worldwide.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest

CAGR due to strong industrial expansion, rapid urban development, and rising environmental consciousness. Major economies such as China, India, Japan, and South Korea are actively investing in recycling infrastructure and sustainable material technologies. Increasing population and consumption are generating significant waste volumes, boosting the need for advanced recycling solutions. Favourable government initiatives, lower production costs, and abundant raw material availability are also attracting international investments. The growing use of eco-friendly packaging and expanding industrial base further support Asia-Pacific's position as the fastest-growing regional market.

Key players in the market

Some of the key players in Bio-based and Recycled Materials Market include Stora Enso, Flexform Technologies, Tecnar GmbH, Fiberon, BCOMP, Sulapac, Norske Skog ASA, Procotex, HOBUM Oleochemicals GmbH, NatureWorks, BASF, Corbion, Novamont, Braskem, Danimer Scientific, Avantium, Borealis and Mitsubishi Chemical.

Key Developments:

In October 2025, BASF SE and ANDRITZ Group have signed a license agreement for the use of BASF's proprietary gas treatment technology, OASE® blue, in a carbon capture project planned to be implemented in the city of Aarhus, Denmark. The project aims to capture approximately 435,000 tons of CO₂ annually from the flue gases of a waste-to-energy plant for sequestration; the city of Aarhus has set itself the goal of becoming CO₂-neutral by 2030.

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.

Sources Covered:

Agricultural Residues

Forestry By-products

Post-consumer Recycled Waste

Industrial Scrap Streams

Material Types Covered:

Bio-based Polymers

Bio-based Composites

Recycled Plastics

Recycled Metals and Alloys

Bio-based Chemicals

Processing Technologies Covered:

Mechanical Recycling

Chemical Recycling

Biochemical Conversion

Thermochemical Conversion

End Users Covered:

Packaging

Automotive & Transportation

Construction & Infrastructure

Consumer Goods & Electronics

Textiles & Apparel

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

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