Bioplastics Market to Grow with $30 Billion Valuation and 7.45% CAGR Forecasted for 2035

The Bioplastics market size was valued at USD 11 billion in 2023. It is projected to grow from USD 13.55 billion in 2024 to USD 71.61 billion by 2035


Bioplastics Market

SHANGHAI, CHINA, August 6, 2025 /EINPresswire.com/ -- In the face of growing environmental concerns, bioplastics have emerged as one of the most promising solutions to reduce plastic waste and decrease our reliance on petroleum-based plastics. As the world becomes more conscious of sustainability, bioplastics have captured the attention of industries, governments, and consumers alike.

The Bioplastics Market is poised for significant growth, driven by increasing environmental awareness and government regulations promoting sustainable materials. The market size was estimated at 12.66 USD Billion in 2023 and is projected to reach 30 USD Billion by 2035, with a CAGR of 7.45% from 2025 to 2035. The packaging sector is the dominant application, expected to generate 6.5 USD Billion in 2024 and expand to 14.5 USD Billion by 2035.

Types of Bioplastics
Polylactic Acid (PLA)
PLA is one of the most commonly used bioplastics, made from fermented plant starch (usually corn). It is biodegradable and compostable under industrial conditions, making it a popular choice for food packaging, disposable cutlery, and textiles. However, PLA does have limitations in terms of its resistance to heat and its performance in certain applications compared to traditional plastics.

Polyhydroxyalkanoates (PHA)
PHA is a group of biodegradable plastics produced by microorganisms that consume plant

sugars and produce plastic as a byproduct. PHAs are often used in medical and packaging applications, and their biodegradability is a key advantage, as they can break down even in marine environments. However, the production costs of PHA are currently higher than conventional plastics, limiting its widespread adoption.

Starch-Based Plastics

Made from starch extracted from crops like potatoes, corn, and tapioca, starch-based plastics are a form of biodegradable bioplastics. They are commonly used for food packaging and disposable products. While these plastics are biodegradable, they require specific conditions to break down, such as moisture and heat, making them more suitable for composting rather than landfill disposal.

Bio-Based Polyethylene (Bio-PE)

Bio-PE is a non-biodegradable plastic made from renewable resources, usually sugarcane. Unlike PLA or PHA, Bio-PE maintains the same chemical structure as conventional polyethylene, which means it offers the same durability and functionality. While it is not biodegradable, it reduces the carbon footprint by using renewable feedstocks, making it an attractive option for packaging, plastic bags, and containers.

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Advantages of Bioplastics

Reduced Carbon Footprint

Bioplastics offer a significant reduction in carbon emissions compared to petroleum-based plastics. The production of bioplastics typically involves less energy and fewer greenhouse gas emissions, contributing to the global effort to combat climate change. As bioplastics are made from renewable resources, they also contribute to the sequestration of carbon during their growth, helping to offset the emissions produced during their production.

Biodegradability

One of the most appealing features of bioplastics, especially biodegradable ones, is their ability to decompose naturally, unlike traditional plastics that persist in the environment for hundreds of years. Biodegradable bioplastics can break down into harmless substances like water, carbon dioxide, and biomass, reducing the long-term environmental impact of plastic waste in landfills and oceans.

Renewable Resources

Unlike petroleum-based plastics, which rely on finite fossil fuels, bioplastics are derived from renewable resources. This shift toward renewable materials is critical in reducing the depletion of non-renewable resources and fostering a more sustainable manufacturing process. Agricultural byproducts like corn stalks, sugarcane, and wheat can be converted into bioplastics, offering a more sustainable alternative to traditional plastic feedstocks.

Waste Reduction

The production of bioplastics from agricultural residues or food waste can help reduce the overall environmental footprint of farming activities. Instead of burning or dumping agricultural waste, these byproducts can be repurposed into valuable products, thus promoting a circular economy and reducing the environmental burden of waste disposal.

Challenges and Limitations

Despite the advantages, there are still several challenges associated with bioplastics.

Production Costs

Currently, the production of bioplastics remains more expensive than conventional plastic, largely due to the cost of raw materials and the relatively small scale of production. While advances in technology and economies of scale could reduce these costs over time, bioplastics are still not as affordable as petroleum-based plastics for many industries.

Land and Resource Competition

The growing demand for bioplastics has raised concerns about land use and resource competition. Crops like corn and sugarcane are in high demand for both food and biofuel production, and using them for bioplastics could exacerbate issues related to food security and land use. It's important to strike a balance between bioplastics production and other critical needs like food and bioenergy.

Limited Durability and Performance

Bioplastics such as PLA and starch-based plastics often struggle with performance limitations. They may not be as durable or heat-resistant as conventional plastics, limiting their use in certain applications. For example, PLA-based packaging might not be suitable for hot food containers or products that require long-term durability.

Recycling and Disposal

While biodegradable bioplastics offer environmental benefits, they still require specific conditions for composting, such as high temperatures and moisture. If these conditions are not met, the bioplastics may not fully degrade, contributing to waste in landfills. Additionally, the recycling infrastructure for bioplastics is not as developed as that for traditional plastics, making it more difficult to integrate bioplastics into existing recycling systems.

The Future of Bioplastics

As technology advances and production techniques improve, bioplastics are expected to play an increasingly important role in the global plastic market. Innovations in bio-based materials, manufacturing processes, and waste management will likely help overcome many of the current limitations of bioplastics. In particular, new research into algae-based bioplastics and waste-to-plastic technologies could pave the way for more sustainable, cost-effective, and high-performance alternatives to conventional plastics.

Governments, industries, and consumers will also need to play an active role in promoting the widespread adoption of bioplastics. By incentivizing sustainable production methods, encouraging recycling, and fostering public awareness of the benefits of bioplastics, we can move toward a future where plastic waste is minimized, and the reliance on fossil fuels is reduced.

Key Companies in the Bioplastics Market Include

Covestro
NatureWorks
Braskem
Biome Bioplastics
Total Corbion PLA
Celluforce
Mitsubishi Chemical
Futerro
Ingeo
Green Dot Bioplastics
Novamont
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BioBag
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In conclusion, bioplastics offer an exciting and sustainable alternative to traditional plastics. While challenges remain, the environmental benefits they offer make them a critical component in the pursuit of a circular economy and a greener, more sustainable future. As the world moves away from single-use plastics, bioplastics could hold the key to reducing plastic pollution and creating a more sustainable planet for future generations.

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