# Polylactic Acid (PLA) Market Report by Raw Material (Corn, Sugarcane and Sugar Beet, Cassava, and Others), End Use Industry (Packaging, Agriculture, Automotive and Transport, Electronics, Textiles, and Others), and Region 2024-2032

Market Report | 2024-08-10 | 145 pages | IMARC Group

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**Report description:**

The global polylactic acid (PLA) market size reached US$ 993.4 Million in 2023. Looking forward, IMARC Group expects the market to reach US$ 3,530.0 Million by 2032, exhibiting a growth rate (CAGR) of 14.7% during 2024-2032. The escalating demand for sustainable packaging solutions, coupled with the increasing production of biodegradable sutures, drug delivery systems, and orthopedic implants, are key factors driving market growth. Additionally, heightened awareness about alternatives to single-use plastics is further propelling the market.

Polylactic Acid (PLA) Market Analysis:
-Major Market Drivers: The major drivers for the polylactic acid (PLA) market share involve rising consumer demand for eco-friendly and sustainable products, supportive government regulations emphasizing the use of biodegradable materials, significant innovations in PLA production technology, and the growing employment of PLA across packaging, biomedical, and agriculture applications. Moreover, the heightening environmental consciousness and continuous efforts toward reducing carbon footprints are significantly contributing to the demand for PLA.
-Key Market Trends: The development of high-performance PLA grades for various applications, increasing collaborations between manufacturers and research institutions, and advancements in PLA recycling technologies represent some of the key trends in the polylactic acid (PLA) market report. There is also a growing inclination towards using PLA in 3D printing and additive manufacturing, owing to its biocompatibility and versatility. The expansion of PLA production capacity globally reflects the rising demand and investment in this sustainable polymer.
-Geographical Trends: North America leads the market due to its strong emphasis on sustainability, extensive research and development (R&D) activities, and supportive regulatory frameworks. The region has a robust infrastructure for biotechnology and green chemistry, fostering innovations in PLA production and applications. Additionally, the presence of major PLA manufacturers,

coupled with growing consumer preference for eco-friendly products, drives the market growth in the region.
-Competitive Landscape: Some of the major market players in the polylactic acid (PLA) industry include BASF SE, COFCO, Evonik Industries AG, Futerro, Jiangsu Supla Bioplastics Co. Ltd., Jiangxi Keyuan Bio-Material Co. Ltd., Mitsui Chemicals Inc., NatureWorks LLC (Cargill Incorporated), Shanghai Tong-Jie-Liang Biomaterials Co. Ltd., and Total Corbion PLA, among many others.
-Challenges and Opportunities: Opportunities for the polylactic acid (PLA) future outlook include expanding applications in packaging, agriculture, and biomedicine, as well as advancements in production technologies and recycling processes. Challenges include high production costs compared to conventional plastics, limited thermal and mechanical properties, and the need for improved composting and recycling infrastructure. Addressing these challenges through innovation and supportive policies can significantly enhance the growth potential of the PLA market.

Polylactic Acid (PLA) Market Trends:
Rising Environmental Sustainability Concerns
The primary driver for the PLA market is the increasing global focus on environmental sustainability. PLA is a biodegradable and compostable polymer derived from renewable resources like corn starch and sugarcane, offering a green alternative to traditional plastics. According to the UN Environment Programme, the world is facing a severe plastic pollution crisis. Every minute, 1 million plastic bottles are purchased, and up to five trillion plastic bags are used annually. Half of all plastic produced is for single use, causing significant environmental damage. Annually, approximately 400 million tonnes of plastic waste are generated, with 36% used in packaging and 85% ending up in landfills or as unregulated waste. Less than 10% of the seven billion tonnes of global plastic waste has been recycled. By 2050, plastic production is projected to reach 1,100 million tonnes, worsening pollution unless systemic changes are implemented. Consequently, the rising awareness of plastic pollution and the harmful effects of conventional plastics on ecosystems drive demand for PLA, as consumers and industries seek eco-friendly solutions to reduce their carbon footprint and mitigate environmental damage.
Supportive Government Regulations
Stringent government regulations and policies promoting the use of biodegradable materials significantly boost the PLA market growth. Governments of various countries are implementing bans on single-use plastics and offering incentives for using sustainable alternatives. For instance, governments of France and India have committed to eliminating single-use plastic products that have low utility and high littering potential. Plastic waste pollution is a global issue, with 400 million tons of plastic produced annually of which 10 million tons end up in the ocean. France and India aim to phase out these plastics by implementing bans and promoting alternatives. France banned several single-use plastics in 2021 and targets ending all single-use plastic packaging by 2040. India introduced rules in 2021 to eliminate various single-use plastics by July 2022 and has mandated Extended Producer Responsibility (EPR) for plastic waste management. Both countries will engage with others to develop a legally binding international agreement to end plastic pollution. These regulatory frameworks compel industries to adopt bioplastics like PLA to comply with environmental standards.
Significant Technological Advancements
Advancements in PLA production technology is a key driver for the market. Improved manufacturing processes have enhanced the properties of PLA, making it more competitive with conventional plastics. Innovations such as high-performance PLA grades and efficient recycling techniques expand its application range across packaging, agriculture, textiles, and biomedical sectors. Technological progress reduces production costs, increases scalability, and improves the overall performance and functionality of PLA, driving its adoption in various industries. For instance, in April 2023, NatureWorks, a leading PLA biopolymers manufacturer, partnered with global manufacturing solutions provider Jabil Inc. to introduce a new Ingeo PLA-based powder for powder-bed fusion technologies, including selective laser sintering (SLS) printer platforms. The product, marketed as Jabil PLA 3110P, offers a cost-effective solution with a lower sintering temperature and an 89% smaller carbon footprint compared to PA-12. Ingeo PLA is derived from annually renewable resources, catering to the demand for biobased alternatives to petrochemical-based powders like PA-12, making it a more sustainable option for 3D printing.
Polylactic Acid (PLA) Market Segmentation:
IMARC Group provides an analysis of the key trends in each segment of the market, along with forecasts at the global, regional, and country levels for 2024-2032. Our report has categorized the market based on raw material and end use industry.

Breakup by Raw Material:

- Corn
- Sugarcane and Sugar Beet
- Cassava
- Others

Corn accounts for the majority of the market share
The report has provided a detailed breakup and analysis of the market based on the raw material. This includes corn, sugarcane and sugar beet, cassava, and others. According to the report, corn represented the largest segment.
Corn accounts for the majority of the Polylactic Acid (PLA) market share primarily due to its abundant availability and cost-effectiveness as a raw material. Corn starch is easily converted into sugars, which are then fermented and polymerized to produce PLA. The established agricultural infrastructure for corn production ensures a stable and scalable supply chain, making it a preferred feedstock for PLA manufacturing. Additionally, the use of corn in PLA production aligns with sustainability goals, as it is a renewable resource. These factors collectively make corn the dominant source for PLA, driving its extensive use in various applications such as packaging, textiles, and biomedical product.
Breakup by End Use Industry:
- Packaging
- Agriculture
- Automotive and Transport
- Electronics
- Textiles
- Others

Packaging holds the largest share of the industry
A detailed breakup and analysis of the market based on the end use industry have also been provided in the report. This includes packaging, agriculture, automotive and transport, electronics, textiles, and others. According to the report, packaging accounted for the largest market share.
Packaging accounts for the majority of the Polylactic Acid (PLA) market share due to its biodegradability, sustainability, and ability to reduce carbon footprints compared to traditional plastics. The rising consumer awareness and regulatory pressures to minimize plastic waste drive the demand for eco-friendly packaging solutions. PLA's properties, such as clarity, rigidity, and compostability, make it ideal for food packaging, disposable cutlery, and containers. Moreover, advancements in PLA production have improved its cost-effectiveness and performance, further boosting its adoption in the packaging industry. As businesses and consumers increasingly prioritize sustainable practices, PLA packaging continues to gain significant market traction.
Breakup by Region:

- North America
  - United States
  - Canada
- Asia-Pacific
  - China
  - Japan
  - India
  - South Korea
  - Australia
  - Indonesia
  - Others

-Europe
oGermany
oFrance
oUnited Kingdom
oItaly
oSpain
oRussia
oOthers
-Latin America
oBrazil
oMexico
oOthers
-Middle East and Africa

North America leads the market, accounting for the largest polylactic acid (PLA) market share
The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America represents the largest regional market for polylactic acid (PLA).
North America leads the PLA market share due to its strong focus on sustainability and advanced research and development infrastructure. The region benefits from supportive regulatory frameworks that encourage the use of biodegradable materials, fostering innovation in PLA production and applications. The presence of major PLA manufacturers and biotechnology companies enhances production capabilities and market penetration. Additionally, North American consumers increasingly prefer eco-friendly products, driving demand. Significant investments in technology and infrastructure for bioplastics further bolster North America's leading position in the PLA market. The combination of regulatory support, consumer demand, and industry innovation makes North America a dominant player in this sector.
For example, in September 2023, Danimer Scientific, a US-based biopolymer manufacturer, and Chevron Phillips Chemical, a petrochemical company, jointly owned by Chevron Corporation and Philips 6, announced a collaboration to advance high-volume biodegradable plastic products using Danimer?s Rinnovo polymers. This partnership aims to leverage Danimer?s expertise in PLA-based bioplastics to enhance market presence and meet the growing demand for sustainable packaging alternatives.
Competitive Landscape:
-The market research report has also provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the major market players in the polylactic acid (PLA) industry include BASF SE, COFCO, Evonik Industries AG, Futerro, Jiangsu Supla Bioplastics Co. Ltd., Jiangxi Keyuan Bio-Material Co. Ltd., Mitsui Chemicals Inc., NatureWorks LLC (Cargill Incorporated), Shanghai Tong-Jie-Liang Biomaterials Co. Ltd., Total Corbion PLA, etc.

(Please note that this is only a partial list of the key players, and the complete list is provided in the report.)

-The competitive analysis for the polylactic acid (PLA) market reveals a landscape dominated by several key players. These companies invest heavily in research and development to improve PLA properties and expand its applications. The market is characterized by strategic collaborations, mergers, and acquisitions to enhance product portfolios and geographic reach. For instance, in November 2022, CJ Biomaterials, Inc., a division of South Korea-based CJ CheilJedang and a leading producer of polyhydroxyalkanoate (PHA), signed a Master Collaboration Agreement (MCA) with NatureWorks, the world?s leading producer of polylactic acid (PLA). The collaboration will focus on creating high-performance biopolymer solutions to replace fossil-fuel-based plastics in various applications, including compostable food packaging, food serviceware, personal care products, films, and other end products.

-Moreover, emerging players are focusing on niche applications and sustainable practices to differentiate themselves. For instance, in March 2023, TotalEnergies Corbion, POSCO International, and ESOL announced a partnership to develop PLA recycling infrastructure and technology in South Korea. This initiative will support the Korean Government's Carbon Neutrality framework over the coming years. POSCO International will oversee and finance the project while ESOL will handle the retrieval and processing of Post Consumer Recycled (PCR) PLA waste, advancing technology for collection, sorting, cleaning, and reworking PLA. TotalEnergies Corbion will contribute expertise in advanced PLA recycling. Competitive pricing, technological advancements, and regulatory compliance are crucial factors influencing market positioning. The dynamic nature of the market encourages continuous improvement and adaptation to meet evolving consumer demands and environmental standards.

Polylactic Acid (PLA) Market News:
-In September 2023, BASF SE announced the launch of biomass balance plastic additives that support the use of renewable feedstock to replace fossil feedstock and fulfill sustainability targets. The initial offerings, including Irganox? 1010 BMBcert and Irganox? 1076 FD BMBcert, are certified by TUV Nord for mass balance according to the International Sustainability and Carbon Certification (ISCC PLUS). These industry-first solutions support the use of renewable feedstock to replace fossil feedstock and help BASF?s customers meet their sustainability targets.
-In September 2023, Evonik Industries AG and LEHVOSS Group entered into a strategic partnership to open up the path for new applications of industrial 3D printing in the automotive sector. With this partnership, LEHVOSS intends to ease the process to develop innovative and customized products for their customers.

Key Questions Answered in This Report
1. What was the size of the global Polylactic Acid (PLA) market in 2023?
2. What is the expected growth rate of the global Polylactic Acid (PLA) market during 2024-2032?
3. What are the key factors driving the global Polylactic Acid (PLA) market?
4. What has been the impact of COVID-19 on the global Polylactic Acid (PLA) market?
5. What is the breakup of the global Polylactic Acid (PLA) market based on the raw material?
6. What is the breakup of the global Polylactic Acid (PLA) market based on the end use industry?
7. What are the key regions in the global Polylactic Acid (PLA) market?
8. Who are the key players/companies in the global Polylactic Acid (PLA) market?

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