

# **Lactic Acid Market by Application (Biodegradable Polymers, Food & Beverages, Pharmaceutical Products), Raw Materials, Form (Dry and Liquid), and Region, Polylactic Acid Market, Application, Form, and Region - Global Forecast to 2028**

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## **Abstracts**

The global lactic acid market size is projected to reach USD 2.8 billion by 2028, recording a CAGR of 12.4%, in terms of value. The global polylactic acid market size is anticipated to reach USD 2.9 billion by 2028, recording a CAGR of 17.7%, in terms of value.

“Surging customer demand for sustainable substitutes of petrochemical-based products is significantly driving the growth of the lactic acid market.”

Growing environmental concerns have led to a greater emphasis on eco-friendly solutions. Lactic acid, derived from renewable sources like corn starch or sugarcane, offers a greener alternative to petrochemicals. As businesses strive to reduce their carbon footprint and promote sustainability, the demand for lactic acid has seen a notable surge. The biodegradable nature of lactic acid presents a significant advantage. It can naturally break down without leaving harmful residues or contributing to environmental pollution. This characteristic is particularly advantageous in industries that require biodegradable materials, such as packaging and plastics, where lactic acid can be a viable choice. Governments and regulatory bodies are increasingly promoting the use of sustainable alternatives to petrochemicals. Various initiatives and regulations encourage the adoption of bio-based and renewable materials, providing further impetus to the lactic acid market.

“Europe is anticipated to have the highest share in the polylactic acid market, valued at

33.4% during the forecast period.”

Europe accounts for USD 0.4 Billion of the market size in global market for polylactic acid in 2023. The polylactic acid (PLA) market in Europe is witnessing remarkable growth, driven by the region's strong focus on sustainability and environmental consciousness. There is a growing awareness among consumers, businesses, and governments regarding the negative environmental impact of traditional plastics. As a biodegradable and renewable alternative, PLA is being widely embraced as a solution to reduce plastic waste and carbon footprint. European governments have implemented stringent regulations and policies that encourage the use of sustainable materials and the reduction of plastic waste, providing a favorable environment for the adoption of bio-based and biodegradable plastics like PLA. The volume and environmental impact of some plastic items are both subject to EU regulations. The EU has taken measures to combat plastic pollution. Single-use plastic plates, cutlery, straws, balloon sticks, and cotton buds were outlawed beginning on July 3, 2021, on the markets of EU Member States. This regulatory support incentivizes companies to transition to PLA for packaging, food service products, and other applications, thereby propelling market growth.

“Corn is the most frequently employed raw material in the production of lactic acid.”

Corn is abundantly available and widely cultivated, making it a reliable and cost-effective source for lactic acid production. Its widespread cultivation provides a stable supply chain and ensures consistent availability of raw materials. Additionally, corn contains high levels of starch, which can be easily converted into glucose, the primary substrate for lactic acid fermentation. The efficient conversion of corn starch into glucose enables high yields and cost-effective production of lactic acid. Furthermore, the established infrastructure and expertise in corn processing make it a preferred choice for lactic acid manufacturers, allowing for efficient extraction and processing of the raw material. The utilization of corn as the primary raw material in lactic acid production aligns with its economic viability, availability, and ease of conversion, making it a practical and widely adopted choice in the industry.

“The bakery & confectionery sub-segment of the application segment of lactic acid market is anticipated to be valued the largest at USD 0.3 billion in 2028.”

The market for confectionery and bakery items is gradually rising due to the rise in convenience food demand and consumer desire for enticing, delectable, and textural treats. The availability, affordability, and nutritional value of bakery goods are further

elements influencing their continued existence in the modern market. Products from bakeries have become a staple in the diets of many customers. This has increased demand for the various baking ingredients used to create savory and textured baked goods. The American Bakers Association estimates that bakery products represent around 2.1% of the US gross domestic product. Lactic acid serves as a versatile ingredient that enhances the quality and shelf life of bakery and confectionery products. It acts as a natural preservative, inhibiting the growth of mold and bacteria, thereby extending the product's freshness and reducing the need for artificial additives. Moreover, lactic acid contributes to the desirable texture, flavor, and color development in baked goods and confections. It imparts a mild tanginess, which adds complexity and depth to the taste profile of various products, including bread, pastries, and candies. With the rising consumer demand for natural ingredients, lactic acid's ability to perform multiple functions while aligning with clean-label requirements has made it an attractive choice for the bakery and confectionery industry.

“The liquid segment of the global lactic acid market is projected to grow and have the largest market share for the forecasted year.”

In 2023, the market was led by the liquid form category. The versatility of liquid lactic acid is expected to be a significant driver of its market growth. Liquid lactic acid offers a wide range of applications across various industries, including food and beverages, pharmaceuticals, personal care, and cleaning products. Its fluid form allows for easy incorporation into different formulations, making it adaptable to diverse product requirements. In the food industry, liquid lactic acid serves as a natural preservative, pH regulator, and flavor enhancer, enhancing the shelf life and taste of various products. It finds use in dairy, bakery, confectionery, and meat processing, among others. In the pharmaceutical industry, liquid lactic acid is utilized for drug formulation, controlled-release systems, and as a chiral intermediate in the synthesis of active pharmaceutical ingredients. The personal care industry benefits from its use in skincare, hair care, and cosmetic products due to its moisturizing, exfoliating, and pH-balancing properties. Additionally, liquid lactic acid plays a vital role in the production of biodegradable polymers, cleaning agents, and industrial applications. With its wide-ranging applications and versatility, the market for liquid lactic acid is poised for growth as industries increasingly recognize its benefits and utilize it in innovative ways..

The break-up of the profile of primary participants in the lactic acid market:

By Company: Tier 1- 35%, Tier 2- 25%, Tier 3 – 40%

By Designation: Managers – 40%, CXOs – 35%, and Executives- 25%

By Region: North America – 15%, Europe – 30%, Asia Pacific -45%, RoW - 10%

Prominent companies include Corbion (Netherlands), Cargill, Incorporated (US), Galactic (Belgium), Unitika Ltd (Japan), Henan Jindan lactic acid Technology Co., Ltd. (China), TORAY INDUSTRIES, INC. (Japan), Sulzer Ltd (China), and others.

#### Research Coverage:

In this report, the lactic acid market has been categorized by raw materials (corn, cassava, sugarcane, yeast extract. and others), form (dry, liquid), application (biodegradable polymers, food & beverages, pharmaceutical products), and region. The polylactic acid market has been segmented by application (packaging, fiber & fabrics, agriculture) and region. . The report's coverage includes specific information on the key elements—such as drivers, restraints, challenges, and opportunities—influencing the market for lactic acid. A comprehensive evaluation of the top industry players has been conducted to provide insights into their business overview, products, and services; important strategies; contracts, partnerships, agreements, the introduction of new products and services, acquisitions and mergers, and current trends affecting the lactic acid market. This research covers competitive analysis of future startups in the lactic acid market environment.

#### Reasons to buy this report:

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall lactic acid market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and to plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (High demand for lactic acid and polylactic acid in end-user applications), restraints (Fluctuations in raw material prices), opportunities (Government regulations and frameworks to encourage the use of bioplastics),

and challenges (High initial investment costs involved for small & medium enterprises) influencing the growth of the lactic acid market.

**Product Development/Innovation:** Detailed insights on research & development activities, and new product & service launches in the lactic acid market.

**Market Development:** Comprehensive information about lucrative markets – the report analyses the lactic acid market across varied regions.

**Market Diversification:** Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the lactic acid market.

**Competitive Assessment:** In-depth assessment of market shares, growth strategies and service offerings of leading players like Corbion (Netherlands), Cargill, Incorporated (US), Galactic (Belgium), and Unitika Ltd (Japan), among others in the lactic acid market strategies.

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## About

The report, "Lactic Acid Market by Application (Biodegradable Polymer, Food & Beverage, Personal Care & Pharmaceutical) & Polylactic Acid Market by Application (Packaging, Agriculture, Automobile, Electronics, Textile) & Geography - Global Trends & Forecasts to 2019" defines the lactic acid and polylactic acid markets and segments with analyses and projections of the size of each market, based on their sub-segments, in terms of value and volumes.

Leading Market Players are:

Nature works LLC (U.S.)

Synbra Technology B.V (Netherlands)

Purac (Netherlands)

It also gives key information of the industry's value chain, the total pool of key players, market classification, and segmentation according to industry trends to the bottom-most level, along with region-wise markets and key developments in the lactic acid and polylactic acid markets. Extensive qualitative and further quantitative analyses were also carried out from all the numbers arrived at in the complete market engineering process, to list out key information.

In 2013, packaging was the largest application for the PLA market, followed by textiles. The others segment includes biomedical devices and domestic goods. The polylactic acid market is witnessing a high growth owing to increasing awareness among consumers and plastic manufacturers regarding the environment, coupled with support from government legislations and increasing landfill waste in various regions. Polylactic acid is not only a biodegradable polymer, but is also a complete bio-based polymer. The global climate change-related issues are projected to drive the demand for PLA in various applications such as food packaging films, food packaging trays, agricultural mulch film, electronic appliances, automotive components, products made from injection molding process, and textiles.

The market for lactic acid is growing as it is largely used in various industrial applications such as in biodegradable polymers, food & beverages, personal care products, and pharmaceutical industries. The lactic acid market is mainly driven by its end-use industries.

In 2013, Biodegradable polymers formed the largest application for lactic acid, followed by food and beverages. The lactic acid market is estimated to grow at a CAGR of 18.8% from 2014 to reach \$3,577.5 million by 2019.

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