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Bio-based Platform Chemicals Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Succinic Acid, Malic Acid, Hydroxypropionic Acid, Glucaric Acid, 1,3-Propanediol (PDO), Glycerol, Aspartic Acid, Others), By Region and Competition, 2020-2030F

https://marketpublishers.com/r/B6B264D59A62EN.html
Date: September 2025
Pages: 185
Price: US$ 4,500.00 (Single User License)
ID: B6B264D59A62EN

Abstracts

Market Overview

Global Bio-based Platform Chemicals Market was valued at USD 12.45 Billion in 2024 and is expected to reach USD 15.92 Billion by 2030 with a CAGR of 4.38%. Bio-based platform chemicals serve as key building blocks for the production of a wide range of bio-based materials, chemicals, and fuels, offering a renewable and lower-carbon footprint solution that aligns with global sustainability goals and regulatory pressures. Market growth is fueled by the rising awareness of climate change and environmental pollution, alongside government incentives and stringent regulations encouraging the adoption of green chemicals across various industries.

Major sectors leveraging bio-based platform chemicals include packaging, automotive, agriculture, personal care, pharmaceuticals, and textiles. However, challenges such as high production costs compared to fossil-based alternatives, feedstock availability, and the need for continuous technological improvements remain barriers to widespread adoption. Despite these hurdles, the global bio-based platform chemicals market is poised for sustained growth, driven by increasing environmental consciousness, innovation, and expanding industrial applications.

Key Market Drivers

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Growth in Bioplastic Industry

The rapid expansion of the bioplastic industry is emerging as a significant driver for the growth of the global bio-based platform chemicals market. Similar to fossil fuel-based plastics, Asia is the leading region for bioplastics production globally. In 2023, Asia accounted for 51 percent of the world's bioplastic production capacity, with China's bioplastics industry experiencing significant expansion. As the world moves towards sustainable alternatives to conventional plastics, the demand for bio-based chemicals derived from renewable resources has intensified, positioning the bioplastics sector at the forefront of this transformation.

Bioplastics, produced from bio-based platform chemicals such as bio-based ethylene, lactic acid, and succinic acid, offer environmentally friendly substitutes that reduce dependence on fossil fuels and minimize carbon footprints. As of May 2024, consumers are willing to pay an average premium of 9.7% for sustainably produced or sourced products, despite ongoing cost-of-living pressures and inflationary challenges. The increasing regulatory pressure to curb plastic pollution, alongside growing consumer preference for eco-friendly products, is accelerating investments in bio-based raw materials and manufacturing technologies.

Key Market Challenges

High Cost of Production

One of the most significant challenges facing the global bio-based platform chemicals market is the high cost of production compared to conventional petrochemical-based alternatives. The manufacturing processes for bio-based chemicals, which often involve fermentation, enzymatic conversion, or other biotechnological methods, can be capital-intensive and technologically complex. Additionally, the cost and availability of suitable biomass feedstocks, along with the need for specialized infrastructure and equipment, further contribute to elevated production expenses.

Unlike fossil-based chemicals, which benefit from mature supply chains and economies of scale, bio-based alternatives are still developing in terms of scalability and cost-efficiency. This cost disparity can limit the commercial viability of bio-based chemicals, particularly in price-sensitive markets, and pose a barrier to broader industry adoption. To address this challenge, companies must focus on improving process efficiencies, investing in technological innovation, and exploring strategic partnerships that can help

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reduce costs and enhance competitiveness over the long term.

Key Market Trends

Technological Innovation in Bioprocessing

One of the most influential trends shaping the global bio-based platform chemicals market is the ongoing technological innovation in bioprocessing. For instance, gas fermentation is an innovative bioprocessing technology that utilizes microorganisms, such as Clostridium, to convert carbon dioxide, carbon monoxide, or syngas into bio-based chemicals including ethanol, butanol, and organic acids. As the demand for sustainable, bio-derived alternatives to petrochemicals grows, advancements in bioprocessing are playing a critical role in making large-scale production of bio-based chemicals more efficient, cost-effective, and environmentally friendly.

Breakthroughs in areas such as synthetic biology, metabolic engineering, and advanced fermentation techniques are enabling the production of key platform chemicals such as lactic acid, succinic acid, and bio-acrylic acid from renewable feedstocks with greater yield and consistency. These technologies are also expanding the range of usable biomass, allowing for the conversion of non-food sources like agricultural waste, forestry residues, and industrial by-products.

Key Market Players

Cargill, Incorporated

dsm-firmenich

GFBIOCHEMICALS

BASF SE

Mitsubishi Chemical Group Corporation

PTT Global Chemical Public Company Limited

DuPont

Tate & Lyle

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Evonik Industries AG

Aktin Chemicals, Inc.

Report Scope

In this report, the Global Bio-based Platform Chemicals Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Bio-based Platform Chemicals Market, By Product:

Succinic Acid

Malic Acid

Hydroxypropionic Acid

Glucaric Acid

1,3-Propanediol (PDO)

Glycerol

Aspartic Acid

Others

Bio-based Platform Chemicals Market, By Region:

North America

United States

Canada

Mexico

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- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain
- Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea
- South America
  - Brazil
  - Argentina
  - Colombia
- Middle East & Africa
  - South Africa
  - Saudi Arabia

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UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Bio-based Platform Chemicals Market.

Available Customizations:

Global Bio-based Platform Chemicals Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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