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Global Bio Based Polyolefins Market Size study, by Type (Polyethylene, Polypropylene, and Functional Polyolefins), by Application (Film & Sheet, Injection Molding, Blow Molding, Fibers & Raffia) and Regional Forecasts 2022-2032

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Abstracts

Global Bio Based Polyolefins Market is valued approximately at USD 345.37 billion in 2023 and is anticipated to grow with a compelling CAGR of more than 7.82% over the forecast period 2024-2032. As global industries undergo a paradigm shift toward sustainability and circular economy frameworks, bio based polyolefins have begun to take center stage in the future of polymer innovation. Derived from renewable feedstocks such as sugarcane ethanol and bio-based hydrocarbons, bio polyolefins—chiefly polyethylene (PE) and polypropylene (PP)—are offering a highly functional, eco-conscious alternative to fossil-based resins. These materials not only match their petrochemical counterparts in mechanical strength, flexibility, and versatility, but also reduce the carbon footprint across the product lifecycle. They are increasingly integrated across applications ranging from consumer goods packaging and automotive parts to agricultural films and textiles.

A multitude of factors is driving this exponential surge in market demand. Stringent governmental regulations pushing for lower greenhouse gas emissions, coupled with corporate ESG mandates, are incentivizing manufacturers to adopt biopolymers into mainstream production. Additionally, technological advancements in catalytic cracking, bio-refining, and monomer synthesis have improved production scalability and cost efficiencies, further narrowing the gap between traditional and bio-based polymers. However, despite the strong momentum, the market continues to face key restraints such as competition with food crops for feedstock, high capital intensity for production facilities, and challenges related to recycling stream integration due to differences in

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polymer grades and additives.

In response, market stakeholders are strategically pivoting toward second-generation feedstocks—such as agricultural waste and lignocellulosic biomass—to minimize food-versus-fuel concerns and unlock new value chains. Many major players are also adopting closed-loop strategies and engaging in vertical integration to ensure a reliable supply of raw materials. Additionally, there is a growing emphasis on enhancing polymer functionality through reactive extrusion and copolymerization, enabling performance parity or superiority in niche applications like high-impact automotive components or high-barrier flexible packaging. These developments are catalyzing broader adoption across premium applications where green materials command added value.

The end-use adoption trajectory of bio based polyolefins continues to broaden. The film & sheet segment remains dominant due to rising demand in sustainable packaging solutions. Injection molding and blow molding are also fast-growing categories, particularly as automotive OEMs and FMCG companies invest in bio-based lightweighting initiatives. Meanwhile, applications such as fibers and raffia in the textile and agriculture sectors are beginning to show promising growth, aided by rising consumer and regulatory pressure for bio-content labeling and traceability. As performance engineering and cost optimization progress, cross-sectoral integration of these materials is likely to intensify.

Regionally, Europe led the global market in 2023, underpinned by robust policy support from the EU Green Deal and a strong base of chemical manufacturers championing renewable innovations. North America followed closely, with the U.S. making notable strides in bio-refinery developments and commercial production of green polyethylene. Asia Pacific is projected to witness the highest growth rate during the forecast period, with China and India emerging as pivotal markets owing to rapid industrialization, rising environmental awareness, and increasing government support for bioeconomy initiatives. Latin America—especially Brazil—continues to be a critical feedstock hub due to its mature sugarcane ethanol infrastructure, while the Middle East & Africa are gradually integrating bio-based materials into construction and packaging sectors.

Major market player included in this report are:

Braskem S.A.

SABIC

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Borealis AG

LyondellBasell Industries

TotalEnergies SE

Mitsui Chemicals, Inc.

Dow Inc.

ExxonMobil Chemical

INEOS Group Holdings S.A.

Reliance Industries Limited

Biome Bioplastics Limited

Trinseo S.A.

Global Bio-chem Technology Group

Danimer Scientific

NatureWorks LLC

The detailed segments and sub-segment of the market are explained below:

By Type:

Polyethylene

Polypropylene

Functional Polyolefins

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By Application:

- Film & Sheet
- Injection Molding
- Blow Molding
- Fibers & Raffia

By Region:

North America

- U.S.
- Canada

Europe

- UK
- Germany
- France
- Spain
- Italy
- Rest of Europe

Asia Pacific

- China

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- India
- Japan
- Australia
- South Korea
- Rest of Asia Pacific

Latin America

- Brazil
- Mexico
- Rest of Latin America

Middle East & Africa

- Saudi Arabia
- South Africa
- Rest of Middle East & Africa

Years considered for the study are as follows:

- Historical year – 2022
- Base year – 2023
- Forecast period – 2024 to 2032

Key Takeaways:

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Market Estimates & Forecast for 10 years from 2022 to 2032.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

Demand side and supply side analysis of the market.

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Contents

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CHAPTER 4. GLOBAL BIO BASED POLYOLEFINS MARKET INDUSTRY ANALYSIS

CHAPTER 5. GLOBAL BIO BASED POLYOLEFINS MARKET SIZE & FORECASTS BY TYPE 2022–2032

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CHAPTER 6. GLOBAL BIO BASED POLYOLEFINS MARKET SIZE & FORECASTS BY APPLICATION 2022–2032

CHAPTER 7. GLOBAL BIO BASED POLYOLEFINS MARKET SIZE & FORECASTS BY REGION 2022–2032

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CHAPTER 8. COMPETITIVE INTELLIGENCE

CHAPTER 9. RESEARCH PROCESS

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List Of Tables

LIST OF TABLES

This list is not complete; the final report does contain more than 100 tables. The list may be updated in the final deliverable.

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