

## **Bio-plasticizers - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)**

Market Report | 2025-06-01 | 120 pages | Mordor Intelligence

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### **Report description:**

Bio-plasticizers Market Analysis

The bio plasticizers market stands at 474.27 kilotons in 2025 and is forecast to reach 642.81 kilotons by 2030, advancing at a 6.27% CAGR. Regulatory bans on phthalates, rising demand for renewable additives, and the rapid electrification of infrastructure collectively underpin this growth trajectory. Capacity expansions across Asia-Pacific bio-refineries are aligning with the automotive sector's switch to bio-based materials for wire and cable insulation, reinforcing long-term volume increases. Supply-side momentum is further supported by strategic feedstock security programs in Thailand and India, while downstream demand in sustainable packaging accelerates adoption in films, sheets, and consumer goods. Intensifying competition among established chemical majors and specialized producers keeps pricing disciplined even as raw material costs fluctuate.

Global Bio-plasticizers Market Trends and Insights

Surging flexible-PVC demand from wire & cable insulation

Wire and cable insulation captured 30.86% of 2024 volume, and the segment's technical specifications increasingly favor bio-derived additives that align with electrification standards. Manufacturers are replacing legacy phthalate systems with epoxidized and citrate esters that maintain dielectric strength in high-voltage environments. Trials confirm that polylactic acid blends can meet electrical property benchmarks, although polyhydroxybutyrate still requires mechanical enhancements for widespread adoption. Electric-vehicle producers are integrating these materials into interior wiring harnesses to satisfy corporate

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sustainability targets. The broader grid-modernization agenda further lifts demand, positioning flexible-PVC applications as an anchor segment for the bio plasticizers market.

#### Stringent phthalate regulations to boost the use of bio-plasticizers

The 2024 FDA decision eliminating 25 ortho-phthalates from food-additive regulations, together with California's phased DEHP ban for medical devices, accelerates industry migration toward safer chemistries. Europe's Regulation (EU) 2025/351 introduces tighter purity and migration thresholds effective March 2025, forcing converters to reformulate packaging and medical components. Citrate esters and epoxidized vegetable oils gain rapid acceptance because they meet toxicological and performance requirements without extensive re-qualification. LANXESS, for instance, reports rising orders for Mesamoll as customers transition away from phthalate-rich formulations. This policy environment creates immediate pull for bio-based alternatives across food contact, healthcare, and children's product lines.

#### Price volatility of vegetable oils

Castor- and soybean-oil prices remain sensitive to weather patterns, export policies, and competing biofuel demand, creating procurement uncertainty for plasticizer producers. Weak demand in early 2025 led to bearish pricing, yet historical swings underscore ongoing exposure. Companies increasingly pursue multi-feedstock sourcing strategies and invest in agronomic improvements to stabilize yields. Policymakers in the United States and European Union offer agricultural subsidies and tax credits that partially offset cost spikes, though broader commodity cycles still influence margins. Forward-contracting and derivative hedging gain popularity among large buyers seeking price transparency and supply assurance.

Other drivers and restraints analyzed in the detailed report include:

Rapid capacity additions of bio-refineries in Asia-Pacific / Growth in the sustainable packaging industry / Performance gap in high-temperature applications /

For complete list of drivers and restraints, kindly check the Table Of Contents.

#### Segment Analysis

ESBO captured 40.21% of 2024 volume on the strength of mature production networks and regulatory approvals for food contact. That leadership delivers favorable unit economics and assured supply to converters. Nevertheless, the "Other Types" segment-covering itaconic acid derivatives and novel bio-esters-will post the highest 8.02% CAGR, reflecting the industry's appetite for chemistries offering enhanced temperature resistance and lower migration. Modifications that raise the oxygen content of ESBO improve plasticization efficiency, indicating that incumbent products continue to evolve to defend share. Meanwhile, castor-oil derivatives gain traction for specialty gaskets and seals that demand superior hydrolytic stability. Close control over feedstock purity remains the critical determinant of consistent performance across all product types.

In volume terms, ESBO will still dominate the bio plasticizers market in 2030, yet its share is expected to taper as new chemistries reach commercial scale. Converters value supply-chain resilience, leading many to dual-source between ESBO and emerging esters to mitigate risk. Patent activity confirms sustained R&D investments across both legacy and next-generation categories, underscoring a dynamic competitive environment that balances cost containment with functional differentiation.

Plant oils contributed 50.19% of 2024 inputs, anchoring the bio plasticizers market size at the raw-material level. Soybean and castor oils remain workhorses owing to established agronomic supply chains and global trade liquidity. Nevertheless, other raw material types are set to grow 7.51% annually, powered by lignin-based compounds and agricultural residue streams that improve

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circularity. Organic acids and anhydrides support niche applications where specific chemical moieties deliver targeted performance characteristics. Glycerol esters, valued for cost-competitiveness, fill general-purpose demand where extreme mechanical strength is not mandatory.

Arkema's successful scale-up of Rilsan PA11 from castor oil illustrates the commercial viability of differentiated feedstocks, while Pebax Rnew highlights opportunities for plasticizer-free elastomers that meet the same end-use objectives. These examples demonstrate how feedstock diversification is both a risk-mitigation strategy and a pathway to higher-margin offerings. As capital flows into new processing technologies, lignin and agricultural wastes are likely to command a growing slice of the bio plasticizers market.

The Bio Plasticizers Market Report Segments the Industry by Product Type (Epoxidized Soybean Oil (ESBO), Castor Oil, and More), Raw-Material Source (Plant Oils, Organic Acids and Anhydrides, and More), Application (Wire and Cable, Film and Sheet, and More), End-User Industry (Packaging, Building and Construction, and More), and Geography (Asia-Pacific, North America, Europe, South America, Middle East and Africa).

### Geography Analysis

Asia-Pacific owned 35.18% bio plasticizers market share in 2024 and is forecast to expand at 7.67% CAGR through 2030, an uncommon blend of scale and growth velocity. Thailand's bio-ethylene project exemplifies the region's transition toward localized bio-feedstock conversion, reducing exposure to petroleum imports and supporting domestic downstream industries. India's extensive castor-oil cultivation underpins regional supply security, though constraints in value-added processing present investment openings for integrated players. The Chinese government's forthcoming oversight framework for recycled plastics in food contact will reinforce demand for compliant bio-plasticizers throughout consumer-goods supply chains.

North America continues to wield regulatory influence and technological leadership. Dow's agreement to source corn-stover-derived ethylene inaugurates agricultural-waste valorization at scale, reinforcing the continent's commitment to circular chemistry. Federal incentives under the Inflation Reduction Act enhance the economics of bio-based intermediates, compensating for higher capital requirements compared with fossil alternatives. Mature logistics and abundant feedstocks further entrench competitive positioning.

Europe maintains a stringent compliance regime, with new purity and migration limits prompting converters to accelerate reformulation. The market rewards suppliers able to prove cradle-to-gate carbon reductions while upholding mechanical performance. Regional recyclates must satisfy traceability rules, adding complexity but also encouraging the uptake of certified bio-balance pathways. South America and the Middle East & Africa represent nascent demand centers where consumer awareness and infrastructure investments are still emerging. Nonetheless, abundant biomass resources position these regions for future capacity expansions once regulatory frameworks mature.

### List of Companies Covered in this Report:

Avient Corporation / Baerlocher GmbH / BASF SE / Cargill, Incorporated. / ChemPoint / Danimer Scientific / DIC Corporation / Dow / Emery Oleochemicals / Evonik Industries AG / Hebei Jingu Plasticizer Co. Ltd. / JIAAO ENPROTECH / Jungbunzlauer Suisse AG, Basel / KLJ Group / LANXESS / Matrica SpA / OXEA GmbH / Perstorp / PTT Global Chemical Public Company Limited / Roquette Freres. / Teknor Apex /

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## **Table of Contents:**

### 1 Introduction

#### 1.1 Study Assumptions and Market Definition

#### 1.2 Scope of the Study

### 2 Research Methodology

### 3 Executive Summary

### 4 Market Landscape

#### 4.1 Market Overview

#### 4.2 Market Drivers

##### 4.2.1 Surging Flexible-PVC Demand from Wire and Cable Insulation

##### 4.2.2 Stringent Phthalate Regulations to Boost the Use of Bio-Plasticizers

##### 4.2.3 Rapid Capacity Additions of Bio-Refineries in Asia-Pacific

##### 4.2.4 Growth in the Sustainable Packaging Industry

##### 4.2.5 Availability of Renewable Feedstocks

#### 4.3 Market Restraints

##### 4.3.1 Price Volatility of Vegetable Oils

##### 4.3.2 Performance Gap in High-Temperature Applications

##### 4.3.3 Availability of Alternatives

#### 4.4 Value Chain Analysis

#### 4.5 Porter's Five Forces

##### 4.5.1 Bargaining Power of Suppliers

##### 4.5.2 Bargaining Power of Buyers

##### 4.5.3 Threat of New Entrants

##### 4.5.4 Threat of Substitutes

##### 4.5.5 Degree of Competition

### 5 Market Size and Growth Forecasts (Volume)

#### 5.1 By Product Type

##### 5.1.1 Epoxidized Soybean Oil (ESBO)

##### 5.1.2 Castor oil

##### 5.1.3 Citrates

##### 5.1.4 Succinic acid

##### 5.1.5 Other Types (Itaconic acid, etc.)

#### 5.2 By Raw-Material Source

##### 5.2.1 Plant Oils

##### 5.2.2 Organic Acids and Anhydrides

##### 5.2.3 Glycerol Esters

##### 5.2.4 Others (Lignin-based Compounds, etc.)

#### 5.3 By Application

##### 5.3.1 Wire and Cable

##### 5.3.2 Film and Sheet

##### 5.3.3 Flooring, Roofing and Wall-covering

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- 5.3.4 Medical Devices
- 5.3.5 Consumer Goods
- 5.3.6 Other Applications (Automotive Interior Parts, etc.)

#### 5.4 By End-User Industry

- 5.4.1 Packaging
- 5.4.2 Building and Construction
- 5.4.3 Healthcare
- 5.4.4 Electrical and Electronics
- 5.4.5 Automotive
- 5.4.6 Consumer Products
- 5.4.7 Others (Textile, Footwear, etc.)

#### 5.5 By Geography

- 5.5.1 Asia-Pacific
  - 5.5.1.1 China
  - 5.5.1.2 India
  - 5.5.1.3 Japan
  - 5.5.1.4 South Korea
  - 5.5.1.5 Rest of Asia-Pacific
- 5.5.2 North America
  - 5.5.2.1 United States
  - 5.5.2.2 Canada
  - 5.5.2.3 Mexico
- 5.5.3 Europe
  - 5.5.3.1 Germany
  - 5.5.3.2 United Kingdom
  - 5.5.3.3 France
  - 5.5.3.4 Italy
  - 5.5.3.5 Rest of Europe
- 5.5.4 South America
  - 5.5.4.1 Brazil
  - 5.5.4.2 Argentina
  - 5.5.4.3 Rest of South America
- 5.5.5 Middle East and Africa
  - 5.5.5.1 Saudi Arabia
  - 5.5.5.2 South Africa
  - 5.5.5.3 Rest of Middle East and Africa

#### 6 Competitive Landscape

- 6.1 Market Concentration
- 6.2 Strategic Moves
- 6.3 Market Share(%) / Ranking Analysis
- 6.4 Company Profiles (includes Global level Overview, Market level overview, Core Segments, Financials, Strategic Information, Market Rank/Share, Products and Services, Recent Developments)
  - 6.4.1 Avient Corporation
  - 6.4.2 Baerlocher GmbH
  - 6.4.3 BASF SE
  - 6.4.4 Cargill, Incorporated.

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- 6.4.5 ChemPoint
- 6.4.6 Danimer Scientific
- 6.4.7 DIC Corporation
- 6.4.8 Dow
- 6.4.9 Emery Oleochemicals
- 6.4.10 Evonik Industries AG
- 6.4.11 Hebei Jingu Plasticizer Co. Ltd.
- 6.4.12 JIAO ENPROTECH
- 6.4.13 Jungbunzlauer Suisse AG, Basel
- 6.4.14 KLJ Group
- 6.4.15 LANXESS
- 6.4.16 Matrica SpA
- 6.4.17 OXEA GmbH
- 6.4.18 Perstorp
- 6.4.19 PTT Global Chemical Public Company Limited
- 6.4.20 Roquette Freres.
- 6.4.21 Teknor Apex

## 7 Market Opportunities and Future Outlook

- 7.1 White-space and Unmet-Need Assessment
- 7.2 Growing Research In Bio-Based Plasticizers

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