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Plastic Composting & Biodegradation Market Forecasts to 2032 – Global Analysis By Plastic Type (Polylactic Acid (PLA), Polyhydroxyalkanoates (PHA), Starch-Based Plastics, Polybutylene Succinate (PBS), Polybutylene Adipate Terephthalate (PBAT), Cellulose-Based Plastics, and Other Biodegradable Plastics), Compostability Standard, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Plastic Composting & Biodegradation Market is accounted for $17.79 billion in 2025 and is expected to reach $46.75 billion by 2032 growing at a CAGR of 14.8% during the forecast period. Plastic composting and biodegradation involve converting biodegradable plastics into harmless components like water, CO?, and organic matter through microbial activity. This breakdown usually happens in industrial composting facilities, though certain materials can degrade in household compost systems as well. The purpose is to minimize ecological damage by allowing plastics to naturally decompose rather than persist in landfills or marine habitats.

Market Dynamics:

Driver:

Rising consumer environmental awareness

People are becoming more aware of pollution caused by conventional plastics and are

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actively seeking alternatives with lower ecological footprints. Brands are responding by introducing products made from renewable feedstocks and certified biodegradable materials. Advancements in bio-based polymers and microbial degradation processes are enabling higher performance across diverse applications. Educational campaigns and stricter sustainability commitments are further shaping purchasing behavior. This shift toward eco-friendly preferences is accelerating market expansion for plastic composting and biodegradation solutions.

Restraint:

Lack of industrial composting infrastructure

Without widespread infrastructure, end-users encounter challenges in properly processing compostable plastics. This restricts adoption, as many biodegradable products require controlled conditions to break down efficiently. Municipal waste systems often lack standardized collection, contamination control, and processing capabilities. Investments in large-scale composting plants remain uneven, particularly in emerging economies. These gaps prevent compostable plastics from achieving their full environmental and commercial potential.

Opportunity:

Waste valorization and circular economy models

Companies are leveraging organic waste streams, agricultural residues, and bio-based feedstocks to generate high-value polymer alternatives. Circular economy models are supporting recovery, regeneration, and reintegration of materials into productive cycles. Innovations such as enzyme-assisted degradation, closed-loop packaging systems, and bio-refinery concepts are gaining momentum. Governments and businesses are collaborating to create ecosystems that reward sustainable materials.

Threat:

Competition from traditional plastics

Many industries still prefer conventional plastics because they offer high durability and well-established supply chains. Price volatility in bio-based materials further widens the cost gap. Limited consumer knowledge about proper composting practices can also reduce confidence in biodegradable alternatives. Regulatory inconsistencies across

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markets hinder uniform adoption and create uncertainty for manufacturers. This dominance of conventional plastics slows the progress of compostable solutions.

Covid-19 Impact:

The pandemic temporarily disrupted supply chains for compostable plastics, affecting raw material availability and production efficiency. However, rising interest in hygiene, sustainability, and responsible packaging revitalized demand for eco-friendly materials. Increased consumption of packaged goods highlighted the need for environmentally safe disposal options. Governments and industry players accelerated research into biodegradable solutions suitable for medical and single-use applications. Digital tools and remote monitoring enhanced R&D continuity during lockdowns.

The polylactic acid (PLA) segment is expected to be the largest during the forecast period

The polylactic acid (PLA) segment is expected to account for the largest market share during the forecast period, due to its widespread use across packaging, consumer goods, and agricultural applications. PLA's bio-based origin and favorable compostability make it a preferred option for environmentally focused brands. Continuous improvements in thermal stability, strength, and processing efficiency are expanding its commercial viability. Manufacturers are integrating PLA into high-volume packaging formats, disposables, and 3D printing materials. Its compatibility with existing production technologies enhances scalability.

The retail & e-commerce segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the retail & e-commerce segment is predicted to witness the highest growth rate, due to rising demand for sustainable packaging in online and offline sales channels. Increased shipment volumes have intensified the need for compostable mailers, films, and protective wraps. Brands are adopting eco-friendly packaging to strengthen their sustainability credentials and appeal to conscious consumers. Technological innovations are enabling durable, lightweight, and cost-effective compostable packaging formats. Growing regulatory pressure against single-use plastics further supports adoption in this sector.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share, owing to strong manufacturing capabilities and expansive consumer markets. Countries such as China, Japan, and India are advancing bio-plastic production and composting technologies. Government policies promoting sustainable materials and waste reduction are driving regional adoption. The rise of organized retail and e-commerce is boosting demand for compostable packaging formats. Investments in green technologies and circular economy initiatives are increasing rapidly.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, driven by increasing consumer demand for eco-friendly products and strict environmental regulations. The region is seeing rapid advancements in composting technologies and bio-polymer innovation. Government initiatives supporting organic waste diversion and sustainable packaging are accelerating adoption. Companies are launching certified compostable materials tailored for food service, retail, and consumer goods sectors. Corporate sustainability commitments are strengthening market growth and encouraging innovation.

Key players in the market

Some of the key players in Plastic Composting & Biodegradation Market include NatureWorks, BioPak Pty Ltd, Novamont, TIPA Corp, BASF SE, FKuR Kunststoff GmbH, Corbion N.V., Plantic Technologies, Mitsubishi Chemical, Cardia Bioplastics, Braskem S.A., Toray Industries, Danimer Scientific, Green Dot Bioplastics, and Biome Bioplastics.

Key Developments:

In November 2025, BASF India Limited has signed a Share Purchase Agreement with Clean Max Enviro Energy Solutions Limited for procuring renewable energy from the hybrid solar and wind farm in the district of Jamnagar, in the State of Gujarat, under the captive power generation mechanism. The company will also sign the Shareholders' Agreement, Energy Supply Agreement, and other ancillary agreements soon.

In August 2025, Corbion and US-based biotech company Kuehnle AgroSystems (KAS) have entered into a strategic partnership to develop and commercialize a high-quality, natural astaxanthin derived from non-GMO heterotrophic algae. Astaxanthin is a powerful antioxidant and red-orange carotenoid pigment found in various aquatic

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organisms, including microalgae, salmon, and shrimp.

Plastic Types Covered:

- Polylactic Acid (PLA)
- Polyhydroxyalkanoates (PHA)
- Starch-Based Plastics
- Polybutylene Succinate (PBS)
- Polybutylene Adipate Terephthalate (PBAT)
- Cellulose-Based Plastics
- Other Biodegradable Plastics

Compostability Standards Covered:

- Industrially Compostable Plastics
- Home-Compostable Plastics
- Biodegradable Plastics
- Marine-Biodegradable Plastics

Applications Covered:

- Packaging
- Agriculture
- Consumer Goods
- Textiles & Fibers

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- Foodservice Products
- Biomedical Applications
- Other Applications

End Users Covered:

- Food & Beverage
- Agriculture & Horticulture
- Healthcare
- Retail & E-commerce
- Consumer Goods
- Industrial Manufacturing
- Waste Management & Recycling
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe

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

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

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Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

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Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

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8 GLOBAL PLASTIC COMPOSTING & BIODEGRADATION MARKET, BY END USER

9 GLOBAL PLASTIC COMPOSTING & BIODEGRADATION MARKET, BY GEOGRAPHY

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10 KEY DEVELOPMENTS

11 COMPANY PROFILING

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List Of Tables

LIST OF TABLES

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Table 38 Global Plastic Composting & Biodegradation Market Outlook, By Other End Users (2024-2032) ($MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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