

Advanced Recycling Technologies Market Forecasts to 2032 – Global Analysis By Product (Naphtha, Heavy Gas Oil, Wax Residue, Monomers & Polymers, Syngas, Recycled Carbon Black and Other Products), Feedstock, Deployment Mode, Technology, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Advanced Recycling Technologies Market is accounted for \$3.08 billion in 2025 and is expected to reach \$23.16 billion by 2032 growing at a CAGR of 33.4% during the forecast period. Advanced Recycling Technologies (ART) refers to innovative processes that transform waste materials, especially plastics and complex industrial by-products, into reusable resources, fuels, or chemicals. Unlike traditional mechanical recycling, ART employs chemical, enzymatic, or thermal methods to break down materials at the molecular level, enabling the recovery of high-quality outputs. These technologies address environmental challenges by reducing landfill dependency, lowering greenhouse gas emissions, and supporting a circular economy. ART encompasses techniques like pyrolysis, depolymerization, and solvolysis, offering sustainable solutions for industries seeking efficient waste valorization and resource conservation.

Market Dynamics:

Driver:

Consumer demand for sustainable products

Brands are shifting toward circular materials and low-carbon inputs to meet

environmental targets and consumer expectations. Chemical recycling platforms enable recovery of plastics and composites previously considered non-recyclable. Integration with supply chain traceability tools improves transparency and compliance. Demand for recycled feedstock is rising across food-grade, industrial, and specialty applications. These dynamics are propelling innovation and investment across recycling infrastructure.

Restraint:

Regulatory uncertainty and policy variability

Definitions of “advanced recycling” and “chemical recycling” vary across jurisdictions, affecting permitting and compliance. Lack of harmonized standards for feedstock quality, emissions, and product labeling creates operational ambiguity. Policy shifts around waste classification and extended producer responsibility impact business models and supply chains. Infrastructure development depends on long-term regulatory clarity and stakeholder alignment. These constraints continue to hinder scalability and cross-border integration.

Opportunity:

Corporate sustainability commitments

Companies are pledging to reduce virgin plastic use and increase recycled content in packaging and products. Investment in closed-loop systems and material recovery platforms supports ESG reporting and brand positioning. Partnerships between recyclers, converters, and brand owners enable feedstock security and product innovation. Integration with carbon accounting and lifecycle analysis tools improves impact measurement. These trends are fostering long-term growth across circular economy infrastructure.

Threat:

Environmental concerns over emissions

Chemical processes such as pyrolysis and gasification may generate greenhouse gases, volatile compounds, or hazardous byproducts. Lifecycle emissions and energy intensity vary across feedstock types and technology configurations. Community opposition and activist campaigns can delay permitting and project development.

Transparency around process efficiency and environmental impact is essential for stakeholder trust. These risks continue to constrain adoption and policy support across sensitive regions.

Covid-19 Impact:

The pandemic disrupted waste collection, recycling operations, and supply chains across global markets. Demand for single-use plastics surged during lockdowns, increasing pressure on recycling infrastructure. However, post-pandemic recovery strategies emphasized sustainability and circularity across packaging and materials. Governments and corporations accelerated investment in advanced recycling to meet climate and waste reduction goals. Public awareness of environmental impact and resource efficiency increased across consumer segments. These shifts are accelerating long-term integration of advanced recycling into industrial and municipal systems.

The monomers & polymers segment is expected to be the largest during the forecast period

The monomers & polymers segment is expected to account for the largest market share during the forecast period due to their central role in enabling closed-loop recycling and feedstock recovery. Technologies such as depolymerization and solvolysis convert plastic waste into virgin-quality monomers for reuse in packaging and textiles. Integration with petrochemical and polymer production lines supports scalability and cost efficiency. Demand for recycled polymers is rising across food-grade, automotive, and electronics applications. These capabilities are boosting segment dominance across chemical and material recovery platforms.

The modular & mobile units segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the modular & mobile units segment is predicted to witness the highest growth rate as decentralized recycling solutions scale across urban, industrial, and remote locations. Compact systems enable on-site processing of plastic waste into fuels, monomers, or intermediates. Deployment in ports, logistics hubs, and manufacturing sites reduces transportation costs and emissions. Vendors offer containerized units with plug-and-play integration and remote monitoring. Demand for flexible, scalable solutions is rising across municipalities, military bases, and disaster recovery zones. These dynamics are accelerating growth across mobile recycling infrastructure.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to its advanced waste management infrastructure, regulatory engagement, and corporate sustainability mandates. U.S. and Canadian firms deploy chemical recycling platforms across packaging, automotive, and industrial sectors. Investment in feedstock aggregation, permitting, and technology scale-up supports platform expansion. Presence of leading recyclers, polymer producers, and brand owners drives innovation and market alignment. Regulatory bodies support advanced recycling through pilot programs and circular economy frameworks. These factors are boosting North America's leadership in recycling technology deployment.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR as plastic waste accumulation, urbanization, and policy reform converge. Countries like China, India, Japan, and Indonesia scale advanced recycling across municipal and industrial sectors. Government-backed programs support infrastructure development, technology transfer, and startup incubation. Local firms launch modular platforms tailored to regional feedstock and compliance needs. Demand for scalable, low-cost solutions rises across urban centers, coastal regions, and manufacturing zones. These trends are accelerating regional growth across advanced recycling ecosystems.

Key players in the market

Some of the key players in Advanced Recycling Technologies Market include BASF SE, Dow Inc., Covestro AG, Eastman Chemical Company, LyondellBasell Industries N.V., Loop Industries, Inc., Brightmark LLC, Agilyx ASA, Carbios SA, Plastic Energy Ltd., Pyrowave Inc., GreenMantra Technologies Ltd., Rement GmbH, Battrecycle Ltd. and Beyond Renewables Ltd.

Key Developments:

In October 2025, BASF formalized collaborations with ZF Friedrichshafen and P?ppelmann GmbH to validate its polyamide recycling technologies in real-world automotive use. These partnerships enable closed-loop recycling of technical plastics and support OEMs in meeting EU End-of-Life Vehicle Directive and Ecodesign

requirements.

In March 2025, Dow announced a strategic investment in Xycle, a Rotterdam-based advanced recycling startup. The partnership supports the construction of Xycle's flagship pyrolysis facility, capable of processing 21 kilotons of plastic waste annually. Dow will serve as an off-taker of the resulting circular feedstock, integrating it into virgin-quality plastic production.

Products Covered:

Naphtha

Heavy Gas Oil

Wax Residue

Monomers & Polymers

Syngas

Recycled Carbon Black

Other Products

Feedstocks Covered:

Mixed Plastic Waste

Polyolefins (PE, PP)

PET & Polyester

PVC & Polystyrene

Biomass & Organic Waste

Electronic Waste (E-Waste)

Other Feedstocks

Deployment Modes Covered:

Centralized Recycling Plants

Modular & Mobile Units

On-Site Industrial Integration

Technologies Covered:

Pyrolysis / Thermal Cracking

Gasification

Depolymerization

Microwave-Assisted Recycling

Solvent-Based Recycling

Enzymatic & Biochemical Recycling

Other Technologies

End Users Covered:

Food & Beverage Packaging

Non-Food Consumer Packaging

Automotive & Transportation

Electronics & Electricals

Infrastructure & Construction

Textiles & Apparel

Other End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

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

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)

Competitive Benchmarking

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

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Product Analysis
- 3.7 Technology Analysis
- 3.8 End User Analysis
- 3.9 Emerging Markets
- 3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY PRODUCT

- 5.1 Introduction
- 5.2 Naphtha
- 5.3 Heavy Gas Oil
- 5.4 Wax Residue
- 5.5 Monomers & Polymers
- 5.6 Syngas
- 5.7 Recycled Carbon Black
- 5.8 Other Products

6 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY FEEDSTOCK

- 6.1 Introduction
- 6.2 Mixed Plastic Waste
- 6.3 Polyolefins (PE, PP)
- 6.4 PET & Polyester
- 6.5 PVC & Polystyrene
- 6.6 Biomass & Organic Waste
- 6.7 Electronic Waste (E-Waste)
- 6.8 Other Feedstocks

7 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY DEPLOYMENT MODE

- 7.1 Introduction
- 7.2 Centralized Recycling Plants
- 7.3 Modular & Mobile Units
- 7.4 On-Site Industrial Integration

8 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY TECHNOLOGY

- 8.1 Introduction
- 8.2 Pyrolysis / Thermal Cracking
- 8.3 Gasification
- 8.4 Depolymerization
- 8.5 Microwave-Assisted Recycling

- 8.6 Solvent-Based Recycling
- 8.7 Enzymatic & Biochemical Recycling
- 8.8 Other Technologies

9 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY END USER

- 9.1 Introduction
- 9.2 Food & Beverage Packaging
- 9.3 Non-Food Consumer Packaging
- 9.4 Automotive & Transportation
- 9.5 Electronics & Electricals
- 9.6 Infrastructure & Construction
- 9.7 Textiles & Apparel
- 9.9 Other End Users

10 GLOBAL ADVANCED RECYCLING TECHNOLOGIES MARKET, BY GEOGRAPHY

- 10.1 Introduction
- 10.2 North America
 - 10.2.1 US
 - 10.2.2 Canada
 - 10.2.3 Mexico
- 10.3 Europe
 - 10.3.1 Germany
 - 10.3.2 UK
 - 10.3.3 Italy
 - 10.3.4 France
 - 10.3.5 Spain
 - 10.3.6 Rest of Europe
- 10.4 Asia Pacific
 - 10.4.1 Japan
 - 10.4.2 China
 - 10.4.3 India
 - 10.4.4 Australia
 - 10.4.5 New Zealand
 - 10.4.6 South Korea
 - 10.4.7 Rest of Asia Pacific
- 10.5 South America

- 10.5.1 Argentina
- 10.5.2 Brazil
- 10.5.3 Chile
- 10.5.4 Rest of South America
- 10.6 Middle East & Africa
 - 10.6.1 Saudi Arabia
 - 10.6.2 UAE
 - 10.6.3 Qatar
 - 10.6.4 South Africa
 - 10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

- 11.1 Agreements, Partnerships, Collaborations and Joint Ventures
- 11.2 Acquisitions & Mergers
- 11.3 New Product Launch
- 11.4 Expansions
- 11.5 Other Key Strategies

12 COMPANY PROFILING

- 12.1 BASF SE
- 12.2 Dow Inc.
- 12.3 Covestro AG
- 12.4 Eastman Chemical Company
- 12.5 LyondellBasell Industries N.V.
- 12.6 Loop Industries, Inc.
- 12.7 Brightmark LLC
- 12.8 Agilyx ASA
- 12.9 Carbios SA
- 12.10 Plastic Energy Ltd.
- 12.11 Pyrowave Inc.
- 12.12 GreenMantra Technologies Ltd.
- 12.13 Rement GmbH
- 12.14 Battrecycle Ltd.
- 12.15 Beyond Renewables Ltd.

List Of Tables

LIST OF TABLES

Table 1 Global Advanced Recycling Technologies Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global Advanced Recycling Technologies Market Outlook, By Product (2024-2032) (\$MN)

Table 3 Global Advanced Recycling Technologies Market Outlook, By Naphtha (2024-2032) (\$MN)

Table 4 Global Advanced Recycling Technologies Market Outlook, By Heavy Gas Oil (2024-2032) (\$MN)

Table 5 Global Advanced Recycling Technologies Market Outlook, By Wax Residue (2024-2032) (\$MN)

Table 6 Global Advanced Recycling Technologies Market Outlook, By Monomers & Polymers (2024-2032) (\$MN)

Table 7 Global Advanced Recycling Technologies Market Outlook, By Syngas (2024-2032) (\$MN)

Table 8 Global Advanced Recycling Technologies Market Outlook, By Recycled Carbon Black (2024-2032) (\$MN)

Table 9 Global Advanced Recycling Technologies Market Outlook, By Other Products (2024-2032) (\$MN)

Table 10 Global Advanced Recycling Technologies Market Outlook, By Feedstock (2024-2032) (\$MN)

Table 11 Global Advanced Recycling Technologies Market Outlook, By Mixed Plastic Waste (2024-2032) (\$MN)

Table 12 Global Advanced Recycling Technologies Market Outlook, By Polyolefins (PE, PP) (2024-2032) (\$MN)

Table 13 Global Advanced Recycling Technologies Market Outlook, By PET & Polyester (2024-2032) (\$MN)

Table 14 Global Advanced Recycling Technologies Market Outlook, By PVC & Polystyrene (2024-2032) (\$MN)

Table 15 Global Advanced Recycling Technologies Market Outlook, By Biomass & Organic Waste (2024-2032) (\$MN)

Table 16 Global Advanced Recycling Technologies Market Outlook, By Electronic Waste (E-Waste) (2024-2032) (\$MN)

Table 17 Global Advanced Recycling Technologies Market Outlook, By Other Feedstocks (2024-2032) (\$MN)

Table 18 Global Advanced Recycling Technologies Market Outlook, By Deployment

Mode (2024-2032) (\$MN)

Table 19 Global Advanced Recycling Technologies Market Outlook, By Centralized Recycling Plants (2024-2032) (\$MN)

Table 20 Global Advanced Recycling Technologies Market Outlook, By Modular & Mobile Units (2024-2032) (\$MN)

Table 21 Global Advanced Recycling Technologies Market Outlook, By On-Site Industrial Integration (2024-2032) (\$MN)

Table 22 Global Advanced Recycling Technologies Market Outlook, By Technology (2024-2032) (\$MN)

Table 23 Global Advanced Recycling Technologies Market Outlook, By Pyrolysis / Thermal Cracking (2024-2032) (\$MN)

Table 24 Global Advanced Recycling Technologies Market Outlook, By Gasification (2024-2032) (\$MN)

Table 25 Global Advanced Recycling Technologies Market Outlook, By Depolymerization (2024-2032) (\$MN)

Table 26 Global Advanced Recycling Technologies Market Outlook, By Microwave-Assisted Recycling (2024-2032) (\$MN)

Table 27 Global Advanced Recycling Technologies Market Outlook, By Solvent-Based Recycling (2024-2032) (\$MN)

Table 28 Global Advanced Recycling Technologies Market Outlook, By Enzymatic & Biochemical Recycling (2024-2032) (\$MN)

Table 29 Global Advanced Recycling Technologies Market Outlook, By Other Technologies (2024-2032) (\$MN)

Table 30 Global Advanced Recycling Technologies Market Outlook, By End User (2024-2032) (\$MN)

Table 31 Global Advanced Recycling Technologies Market Outlook, By Food & Beverage Packaging (2024-2032) (\$MN)

Table 32 Global Advanced Recycling Technologies Market Outlook, By Non-Food Consumer Packaging (2024-2032) (\$MN)

Table 33 Global Advanced Recycling Technologies Market Outlook, By Automotive & Transportation (2024-2032) (\$MN)

Table 34 Global Advanced Recycling Technologies Market Outlook, By Electronics & Electricals (2024-2032) (\$MN)

Table 35 Global Advanced Recycling Technologies Market Outlook, By Infrastructure & Construction (2024-2032) (\$MN)

Table 36 Global Advanced Recycling Technologies Market Outlook, By Textiles & Apparel (2024-2032) (\$MN)

Table 37 Global Advanced Recycling Technologies 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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