

Closed-Loop Textile Recycling Market Forecasts to 2034 – Global Analysis By Textile Waste Source (Post-Consumer Textile Waste, Pre-Consumer Textile Waste, Industrial Textile Waste, Home Textile Waste, Automotive Textile Waste and Other Textile Waste), Recycling Process, Recycled Material, Application, Collection and Circularity Model, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Closed-Loop Textile Recycling Market is accounted for \$1.8 billion in 2026 and is expected to reach \$5.9 billion by 2034 growing at a CAGR of 15.9% during the forecast period. Closed-loop textile recycling refers to the complete system of collecting, sorting, and processing post-consumer and post-industrial textile waste into high-quality secondary fibers that are re-spun into new yarns for manufacturing fresh apparel, home furnishings, and industrial textile products, thereby eliminating the linear take-make-waste model. These systems employ mechanical, chemical, or enzymatic processes to break down fiber structures, separate blends, and recover pure polymer chains or cellulose materials suitable for re-extrusion and spinning without quality degradation.

Market Dynamics:

Driver:

Fashion Industry Sustainability Commitments

Fashion industry sustainability commitments and regulatory mandates for textile circularity are driving substantial investment in closed-loop recycling infrastructure, as

major apparel brands face 2025–2030 targets for using certified recycled fibers and eliminating virgin plastic in their collections. Extended producer responsibility frameworks for textiles in Europe are accelerating corporate procurement of recycled materials, while sustainability reporting requirements are encouraging brands to establish traceable circular supply chains. Increasing consumer preference for environmentally responsible apparel is further strengthening demand for recycled textile fibers.

Restraint:

Technical Difficulty in Fiber Separation

Technical difficulty in separating blended fiber compositions, especially cotton-polyester and polyamide-elastane combinations, remains a significant barrier to high-quality closed-loop recycling that produces materials suitable for garment-grade applications. Limited availability of commercial-scale fiber sorting technologies restricts processing capacity and recovery efficiency. Complex textile constructions, dyes, finishes, coatings, and contaminants further complicate recycling processes, increasing operational costs and reducing material yields. These technical challenges can limit scalability and discourage investment in advanced recycling infrastructure.

Opportunity:

Chemical Recycling for Blended Textiles

Emerging chemical recycling technologies capable of dissolving and separating blended textile polymers offer a significant market opportunity for producing virgin-quality monomers from previously unrecyclable mixed-fiber garments. Depolymerization processes for polyester and polyamide components are becoming commercially viable for handling complex textile waste streams. Advances in solvent-based separation, polymer purification, and enzymatic processing are enabling higher recovery rates and improved fiber quality. Commercial deployment of these technologies can significantly expand the addressable feedstock base for closed-loop textile recycling.

Threat:

Virgin Fiber Price Competition

Virgin fiber price competition from low-cost cotton and petrochemical-derived polyester creates economic pressure on recycled fiber pricing, as brands may choose cheaper virgin materials when recycled content is not mandated or when consumer willingness to pay for sustainable apparel weakens. Fluctuating commodity prices can undermine investment returns for capital-intensive recycling facilities. Additionally, periods of lower

virgin polymer prices can reduce recycled material margins, creating uncertainty for recyclers and potentially delaying capacity expansion and technology commercialization across major textile-producing regions.

Covid-19 Impact:

The COVID-19 pandemic initially disrupted textile collection systems and depressed apparel consumption, reducing feedstock availability for recycling operations and delaying circularity investment. However, the crisis accelerated consumer awareness of sustainability and supply chain vulnerabilities, prompting major fashion houses to intensify circular economy commitments for building resilient sourcing models. Disruptions in international logistics also highlighted the importance of localized recycling infrastructure and diversified material supply chains, encouraging stakeholders to evaluate domestic textile waste recovery and closed-loop manufacturing capabilities.

The Post-Consumer Textile Waste segment is expected to be the largest during the forecast period

The Post-Consumer Textile Waste segment is expected to account for the largest market share during the forecast period, due to the enormous volume of discarded clothing and household textiles generated globally each year, which represents the primary feedstock source for commercial-scale closed-loop recycling operations. Growing consumer participation in textile take-back programs and increasing municipal collection infrastructure for used clothing drives segment scale. Expansion of retailer collection initiatives and improved sorting infrastructure is further increasing the availability of recoverable post-consumer textile materials.

The Chemical Recycling segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Chemical Recycling segment is predicted to witness the highest growth rate, driven by significant commercial-scale plant announcements and technology breakthroughs for processing blended and polyester-rich textile waste, which mechanical recycling cannot effectively separate. Depolymerization and dissolution technologies are reaching industrial viability for producing virgin-quality monomers and polymers for re-spinning into new fibers. Increasing investment from textile manufacturers, chemical companies, and fashion brands is expected to accelerate technology commercialization and capacity expansion globally.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, due to the United States having substantial textile consumption and disposal volumes, combined with early-stage commercial chemical recycling facilities, supportive state-level policies for textile circularity, and presence of major fashion brands with sustainable sourcing commitments. Strong collection infrastructure supports regional market growth. Increasing investments in textile sorting, fiber recovery, and

advanced recycling facilities are expected to further strengthen North America's market position during the forecast period.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, due to China, India, and Bangladesh being the world's largest textile manufacturing and consumption hubs generating massive pre-consumer and post-consumer textile waste volumes. Aggressive government circular economy policies and rapid chemical recycling technology deployment across Asian manufacturing centers support leadership. Growing investments in advanced sorting, textile-to-textile recycling facilities, and sustainable manufacturing infrastructure are expected to further accelerate regional market expansion and technology adoption.

Key players in the market

Some of the key players in Global Closed-Loop Textile Recycling Market include Lenzing AG, Unifi, Inc., Hyosung TNC Corporation, Aquafil S.p.A., Carbios SA, Eastman Chemical Company, Indorama Ventures Public Company Limited, Toray Industries, Inc., Teijin Limited, Aditya Birla Group, Grasim Industries Limited, Asahi Kasei Corporation, Kuraray Co., Ltd., Marubeni Corporation, Mitsubishi Corporation, ITOCHU Corporation, Daicel Corporation, and Veolia Environnement S.A.

Key Developments:

In August 2026, Lenzing AG announced a new chemical recycling plant for cellulosic textile waste, expanding closed-loop capacity for its Tencel fiber production. The initiative strengthens the company's focus on circular fiber manufacturing and supports greater utilization of post-consumer textile feedstock.

In July 2026, Carbios SA launched a commercial enzymatic recycling facility for polyester textile waste, processing blended fiber materials. The facility demonstrates the increasing commercialization of enzymatic recycling technologies for difficult textile waste streams and supports the recovery of polyester components for subsequent fiber production.

Textile Waste Sources Covered:

Post-Consumer Textile Waste

Pre-Consumer Textile Waste

Industrial Textile Waste

Home Textile Waste

Automotive Textile Waste

Other Textile Waste

Recycling Processes Covered:

Mechanical Recycling

Chemical Recycling

Thermal Recycling

Enzymatic Recycling

Hybrid Recycling

Automated Sorting and Fiber Identification

Recycled Materials Covered:

Cotton

Polyester

Nylon and Polyamide

Wool

Viscose and Cellulosic Fibers

Blended Fibers

Other Recycled Fibers

Applications Covered:

Apparel

Home Furnishing

Industrial and Institutional Textiles

Automotive Textiles

Technical Textiles

Nonwoven Products

Other Applications

Collection and Circularity Models Covered:

Textile Take-Back Programs

Municipal Textile Collection

Commercial Textile Collection

Closed-Loop Brand Recycling

Recycled Fiber Supply Partnerships

Digital Textile Traceability

Integrated Collection-to-Recycling Systems

End Users Covered:

Apparel Manufacturers

Fashion Brands and Retailers

Textile and Fiber Manufacturers

Home Furnishing Manufacturers

Automotive Manufacturers

Industrial and Technical Textile Manufacturers

Other End Users

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

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

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY TEXTILE WASTE SOURCE

- 5.1 Post-Consumer Textile Waste
- 5.2 Pre-Consumer Textile Waste
- 5.3 Industrial Textile Waste
- 5.4 Home Textile Waste
- 5.5 Automotive Textile Waste
- 5.6 Other Textile Waste

6 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY RECYCLING PROCESS

- 6.1 Mechanical Recycling
- 6.2 Chemical Recycling
- 6.3 Thermal Recycling
- 6.4 Enzymatic Recycling
- 6.5 Hybrid Recycling
- 6.6 Automated Sorting and Fiber Identification

7 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY RECYCLED MATERIAL

- 7.1 Cotton
- 7.2 Polyester
- 7.3 Nylon and Polyamide
- 7.4 Wool
- 7.5 Viscose and Cellulosic Fibers
- 7.6 Blended Fibers
- 7.7 Other Recycled Fibers

8 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY APPLICATION

- 8.1 Apparel
- 8.2 Home Furnishing

8.3 Industrial and Institutional Textiles

8.4 Automotive Textiles

8.5 Technical Textiles

8.6 Nonwoven Products

8.7 Other Applications

9 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY COLLECTION AND CIRCULARITY MODEL

9.1 Textile Take-Back Programs

9.2 Municipal Textile Collection

9.3 Commercial Textile Collection

9.4 Closed-Loop Brand Recycling

9.5 Recycled Fiber Supply Partnerships

9.6 Digital Textile Traceability

9.7 Integrated Collection-to-Recycling Systems

10 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY END USER

10.1 Apparel Manufacturers

10.2 Fashion Brands and Retailers

10.3 Textile and Fiber Manufacturers

10.4 Home Furnishing Manufacturers

10.5 Automotive Manufacturers

10.6 Industrial and Technical Textile Manufacturers

10.7 Other End Users

11 GLOBAL CLOSED-LOOP TEXTILE RECYCLING MARKET, BY GEOGRAPHY

11.1 North America

11.1.1 United States

11.1.2 Canada

11.1.3 Mexico

11.2 Europe

11.2.1 United Kingdom

11.2.2 Germany

11.2.3 France

11.2.4 Italy

11.2.5 Spain

- 11.2.6 Netherlands
- 11.2.7 Belgium
- 11.2.8 Sweden
- 11.2.9 Switzerland
- 11.2.10 Poland
- 11.2.11 Rest of Europe
- 11.3 Asia Pacific
 - 11.3.1 China
 - 11.3.2 Japan
 - 11.3.3 India
 - 11.3.4 South Korea
 - 11.3.5 Australia
 - 11.3.6 Indonesia
 - 11.3.7 Thailand
 - 11.3.8 Malaysia
 - 11.3.9 Singapore
 - 11.3.10 Vietnam
 - 11.3.11 Rest of Asia Pacific
- 11.4 South America
 - 11.4.1 Brazil
 - 11.4.2 Argentina
 - 11.4.3 Colombia
 - 11.4.4 Chile
 - 11.4.5 Peru
 - 11.4.6 Rest of South America
- 11.5 Rest of the World (RoW)
 - 11.5.1 Middle East
 - 11.5.1.1 Saudi Arabia
 - 11.5.1.2 United Arab Emirates
 - 11.5.1.3 Qatar
 - 11.5.1.4 Israel
 - 11.5.1.5 Rest of Middle East
 - 11.5.2 Africa
 - 11.5.2.1 South Africa
 - 11.5.2.2 Egypt
 - 11.5.2.3 Morocco
 - 11.5.2.4 Rest of Africa

12 STRATEGIC MARKET INTELLIGENCE

- 12.1 Industry Value Network and Supply Chain Assessment
- 12.2 White-Space and Opportunity Mapping
- 12.3 Product Evolution and Market Life Cycle Analysis
- 12.4 Channel, Distributor, and Go-to-Market Assessment

13 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 13.1 Mergers and Acquisitions
- 13.2 Partnerships, Alliances, and Joint Ventures
- 13.3 New Product Launches and Certifications
- 13.4 Capacity Expansion and Investments
- 13.5 Other Strategic Initiatives

14 COMPANY PROFILES

- 14.1 Lenzing AG
- 14.2 Unifi, Inc.
- 14.3 Hyosung TNC Corporation
- 14.4 Aquafil S.p.A.
- 14.5 Carbios SA
- 14.6 Eastman Chemical Company
- 14.7 Indorama Ventures Public Company Limited
- 14.8 Toray Industries, Inc.
- 14.9 Teijin Limited
- 14.10 Aditya Birla Group
- 14.11 Grasim Industries Limited
- 14.12 Asahi Kasei Corporation
- 14.13 Kuraray Co., Ltd.
- 14.14 Marubeni Corporation
- 14.15 Mitsubishi Corporation
- 14.16 ITOCHU Corporation
- 14.17 Daicel Corporation
- 14.18 Veolia Environnement S.A.

List Of Tables

LIST OF TABLES

Table 1 Global Closed-Loop Textile Recycling Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Closed-Loop Textile Recycling Market Outlook, By Textile Waste Source (2023-2034) (\$MN)

Table 3 Global Closed-Loop Textile Recycling Market Outlook, By Post-Consumer Textile Waste (2023-2034) (\$MN)

Table 4 Global Closed-Loop Textile Recycling Market Outlook, By Pre-Consumer Textile Waste (2023-2034) (\$MN)

Table 5 Global Closed-Loop Textile Recycling Market Outlook, By Industrial Textile Waste (2023-2034) (\$MN)

Table 6 Global Closed-Loop Textile Recycling Market Outlook, By Home Textile Waste (2023-2034) (\$MN)

Table 7 Global Closed-Loop Textile Recycling Market Outlook, By Automotive Textile Waste (2023-2034) (\$MN)

Table 8 Global Closed-Loop Textile Recycling Market Outlook, By Other Textile Waste (2023-2034) (\$MN)

Table 9 Global Closed-Loop Textile Recycling Market Outlook, By Recycling Process (2023-2034) (\$MN)

Table 10 Global Closed-Loop Textile Recycling Market Outlook, By Mechanical Recycling (2023-2034) (\$MN)

Table 11 Global Closed-Loop Textile Recycling Market Outlook, By Chemical Recycling (2023-2034) (\$MN)

Table 12 Global Closed-Loop Textile Recycling Market Outlook, By Thermal Recycling (2023-2034) (\$MN)

Table 13 Global Closed-Loop Textile Recycling Market Outlook, By Enzymatic Recycling (2023-2034) (\$MN)

Table 14 Global Closed-Loop Textile Recycling Market Outlook, By Hybrid Recycling (2023-2034) (\$MN)

Table 15 Global Closed-Loop Textile Recycling Market Outlook, By Automated Sorting and Fiber Identification (2023-2034) (\$MN)

Table 16 Global Closed-Loop Textile Recycling Market Outlook, By Recycled Material (2023-2034) (\$MN)

Table 17 Global Closed-Loop Textile Recycling Market Outlook, By Cotton (2023-2034) (\$MN)

Table 18 Global Closed-Loop Textile Recycling Market Outlook, By Polyester

(2023-2034) (\$MN)

Table 19 Global Closed-Loop Textile Recycling Market Outlook, By Nylon and Polyamide (2023-2034) (\$MN)

Table 20 Global Closed-Loop Textile Recycling Market Outlook, By Wool (2023-2034) (\$MN)

Table 21 Global Closed-Loop Textile Recycling Market Outlook, By Viscose and Cellulosic Fibers (2023-2034) (\$MN)

Table 22 Global Closed-Loop Textile Recycling Market Outlook, By Blended Fibers (2023-2034) (\$MN)

Table 23 Global Closed-Loop Textile Recycling Market Outlook, By Other Recycled Fibers (2023-2034) (\$MN)

Table 24 Global Closed-Loop Textile Recycling Market Outlook, By Application (2023-2034) (\$MN)

Table 25 Global Closed-Loop Textile Recycling Market Outlook, By Apparel (2023-2034) (\$MN)

Table 26 Global Closed-Loop Textile Recycling Market Outlook, By Home Furnishing (2023-2034) (\$MN)

Table 27 Global Closed-Loop Textile Recycling Market Outlook, By Industrial and Institutional Textiles (2023-2034) (\$MN)

Table 28 Global Closed-Loop Textile Recycling Market Outlook, By Automotive Textiles (2023-2034) (\$MN)

Table 29 Global Closed-Loop Textile Recycling Market Outlook, By Technical Textiles (2023-2034) (\$MN)

Table 30 Global Closed-Loop Textile Recycling Market Outlook, By Nonwoven Products (2023-2034) (\$MN)

Table 31 Global Closed-Loop Textile Recycling Market Outlook, By Other Applications (2023-2034) (\$MN)

Table 32 Global Closed-Loop Textile Recycling Market Outlook, By Collection and Circularity Model (2023-2034) (\$MN)

Table 33 Global Closed-Loop Textile Recycling Market Outlook, By Textile Take-Back Programs (2023-2034) (\$MN)

Table 34 Global Closed-Loop Textile Recycling Market Outlook, By Municipal Textile Collection (2023-2034) (\$MN)

Table 35 Global Closed-Loop Textile Recycling Market Outlook, By Commercial Textile Collection (2023-2034) (\$MN)

Table 36 Global Closed-Loop Textile Recycling Market Outlook, By Closed-Loop Brand Recycling (2023-2034) (\$MN)

Table 37 Global Closed-Loop Textile Recycling Market Outlook, By Recycled Fiber Supply Partnerships (2023-2034) (\$MN)

Table 38 Global Closed-Loop Textile Recycling Market Outlook, By Digital Textile Traceability (2023-2034) (\$MN)

Table 39 Global Closed-Loop Textile Recycling Market Outlook, By Integrated Collection-to-Recycling Systems (2023-2034) (\$MN)

Table 40 Global Closed-Loop Textile Recycling Market Outlook, By End User (2023-2034) (\$MN)

Table 41 Global Closed-Loop Textile Recycling Market Outlook, By Apparel Manufacturers (2023-2034) (\$MN)

Table 42 Global Closed-Loop Textile Recycling Market Outlook, By Fashion Brands and Retailers (2023-2034) (\$MN)

Table 43 Global Closed-Loop Textile Recycling Market Outlook, By Textile and Fiber Manufacturers (2023-2034) (\$MN)

Table 44 Global Closed-Loop Textile Recycling Market Outlook, By Home Furnishing Manufacturers (2023-2034) (\$MN)

Table 45 Global Closed-Loop Textile Recycling Market Outlook, By Automotive Manufacturers (2023-2034) (\$MN)

Table 46 Global Closed-Loop Textile Recycling Market Outlook, By Industrial and Technical Textile Manufacturers (2023-2034) (\$MN)

Table 47 Global Closed-Loop Textile Recycling Market Outlook, By Other End Users (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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