

Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Report and Forecast 2025-2034

Market Report | 2025-07-28 | 156 pages | EMR Inc.

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Report description:

The Carbon Fibre Reinforced Thermoplastic (CFRTP) composites market is expected to grow at a CAGR of 4.20% during the period 2025-2034. The market is likely to be driven by uses in sectors such as automobiles and aerospace owing to properties of Carbon Fibre Reinforced Thermoplastic (CFRTP), such as low density, superior strength, good impact toughness, high-quality fatigue resistance, recyclable use, fast processing, and low cost of manufacturing. North America, Europe and Asia are expected to be key markets.

Global Market Likely to be Driven by Applications Across Sectors and Advantages Afforded

Carbon fibre is a promising lightweight material characterized by high-strength, high-temperature resistance, and good chemical resistance. It is non-toxic and low-density, and exhibits high wear resistance. Further, it is non-corrosive and recyclable and possesses a good strength-to-weight ratio. It has outstanding thermal, mechanical, and electrical properties. Carbon fibre reinforced polymer matrix composite products are extensively employed in multiple applications owing to their excellent thermal, structural, mechanical, electrical, and tribological properties; applications include uses in aerospace, wind energy, marine, automobile, infrastructure, building and construction, and sports goods.

CFRP refers to Carbon Fibre Reinforced Polymer/Plastic and represents a group of plastics reinforced with carbon fibres for high strength and stiffness and reduced weight. Plastics capable of being reinforced with carbon fibres may be placed under two main groups - thermoset and thermoplastics. CFRTP refers to Carbon Fibre Reinforced Thermoplastics which is a subgroup within the CFRP material group. Thermoplastics reinforced with carbon fibres display characteristics different from those exhibited by carbon fibre reinforced thermosets. Thermoplastics may be recycled and are suited to the circular economy model. Aforementioned properties and advantages are expected to boost the global Carbon Fibre Reinforced Thermoplastic (CFRTP) composites market .

Properties of Carbon Fibre Reinforced Thermoplastic (CFRTP) are Suited to Meet Demands of High Temperature Sectors

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Carbon Fibre Reinforced Thermoplastics (CFRTPs) are generally manufactured with the help of conventional moulding approaches, including injection, rotational, extrusion, vacuum, and compression mouldings. Carbon Fibre Reinforced Thermoplastic (CFRTP) has attracted significant study due to its outstanding mechanical and thermal properties, recyclability, flexibility, less production time, and environmentally-friendly. The key thermal properties of Carbon Fibre Reinforced Thermoplastic (CFRTP) include thermal stability, thermal conductivity, melting temperature, and glass transition temperature. Properties of Carbon Fibre Reinforced Thermoplastic (CFRTP) may be enhanced or altered on the basis of materials and methods to be used. By enhancing thermal properties, Carbon Fibre Reinforced Thermoplastic (CFRTP) becomes more suited to meet the demands of different high-temperature sectors such as aerospace, oil, and gas.

Carbon Fibre Reinforced Thermoplastic (CFRTP) composite materials are becoming an increasingly used class of lightweight materials, making Carbon Fibre Reinforced Thermoplastic (CFRTP) a promising alternative in multiple industrial applications. Properties like low weight, high strength, and good thermal and electrical properties make Carbon Fibre Reinforced Thermoplastic (CFRTP) a preferred composite material as compared to neat polymers, CFRPs, and other metallic materials. Anti-fatigue, anti-aging, and creep resistance are other key advantages. Carbon Fibre Reinforced Thermoplastic (CFRTP) may partially substitute expensive engineering plastics and CFRP material products; it may also partially replace lightweight metal materials (like aluminium-magnesium alloys).

Application of Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites in Automobiles Likely to Boost Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market

Advanced Carbon Fibre Reinforced Thermoplastic (CFRTP) and thermoplastic composites are one of the fastest-growing technologies in the international composite material domain; organizations have invested heavily towards research, development, and application. Advanced carbon fibre composite materials (including CFRP and CFRTP) offer several advantages to the automotive and parts manufacturing industry in terms of lighter weight (results in improved energy saving, acceleration, and braking performance), safety (weight reduction of the vehicle body may shift the centre of gravity of the vehicle lower and enhance steering stability), comfort, reliability and enhanced body development level. Considering the application of Mercedes-Benz, BMW, Audi and other high-end automotive companies in the product line, the application of new Carbon Fibre Reinforced Thermoplastic (CFRTP) materials in automobiles is expected to drive the market.

Use in Manufacturing Aircraft Expected to Drive Market Growth

Carbon Fibre Reinforced Thermoplastic (CFRTP) is being used in the manufacturing of aircraft. For example, in 2019, Teijin Limited announced that the A350 XWB aircraft, Airbus's new-generation extra-wide-body midsize jetliner using Teijin's Tenax TPCL carbon fibre thermoplastic consolidated laminate, was delivered to Japan Airlines (JAL). Such applications are expected to boost market growth.

Market Segmentation

Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Report and Forecast 2025-2034 offers a detailed analysis of the market based on the following segments:

By product type, the market is segmented into:

- Continuous Carbon Fibre
- Long Carbon Fibre
- Short Carbon Fibre

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By resin type, the market is divided into:

- Polyetheretherketone (PEEK)
- Polyamide (PA)
- Polycarbonate (PC)
- Polyphenylene Sulfide (PPS)

By application, the market is classified into:

- Aerospace
- Automotive
- Consumer Durables
- Others

By region, the market is segmented into:

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Key Industry Players in the Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market

The report presents a detailed analysis of the following key players in the market, looking into their capacity, and latest developments like capacity expansions, plant turnarounds, and mergers and acquisitions:

- Covestro AG.
- Celanese Corporation
- Teijin Limited
- Toray Industries, Inc.
- SGL Carbon SE
- Others

The EMR report gives an in-depth insight into the industry by providing a SWOT analysis as well as an analysis of Porter's Five Forces model.

Table of Contents:

- 1 Executive Summary
- 1.1 Market Size 2024-2025
- 1.2 Market Growth 2025(F)-2034(F)
- 1.3 Key Demand Drivers
- 1.4 Key Players and Competitive Structure
- 1.5 Industry Best Practices

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- 1.6 Recent Trends and Developments
- 1.7 Industry Outlook
- 2 Market Overview and Stakeholder Insights
 - 2.1 Market Trends
 - 2.2 Key Verticals
 - 2.3 Key Regions
 - 2.4 Supplier Power
 - 2.5 Buyer Power
 - 2.6 Key Market Opportunities and Risks
 - 2.7 Key Initiatives by Stakeholders
- 3 Economic Summary
 - 3.1 GDP Outlook
 - 3.2 GDP Per Capita Growth
 - 3.3 Inflation Trends
 - 3.4 Democracy Index
 - 3.5 Gross Public Debt Ratios
 - 3.6 Balance of Payment (BoP) Position
 - 3.7 Population Outlook
 - 3.8 Urbanisation Trends
- 4 Country Risk Profiles
 - 4.1 Country Risk
 - 4.2 Business Climate
- 5 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 5.1 Key Industry Highlights
 - 5.2 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Historical Market (2018-2024)
 - 5.3 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Forecast (2025-2034)
 - 5.4 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market by Product Type
 - 5.4.1 Continuous Carbon Fibre
 - 5.4.1.1 Historical Trend (2018-2024)
 - 5.4.1.2 Forecast Trend (2025-2034)
 - 5.4.2 Long Carbon Fibre
 - 5.4.2.1 Historical Trend (2018-2024)
 - 5.4.2.2 Forecast Trend (2025-2034)
 - 5.4.3 Short Carbon Fibre
 - 5.4.3.1 Historical Trend (2018-2024)
 - 5.4.3.2 Forecast Trend (2025-2034)
 - 5.5 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market by Resin Type
 - 5.5.1 Polyetheretherketone (PEEK)
 - 5.5.1.1 Historical Trend (2018-2024)
 - 5.5.1.2 Forecast Trend (2025-2034)
 - 5.5.2 Polyamide (PA)
 - 5.5.2.1 Historical Trend (2018-2024)
 - 5.5.2.2 Forecast Trend (2025-2034)
 - 5.5.3 Polycarbonate (PC)
 - 5.5.3.1 Historical Trend (2018-2024)
 - 5.5.3.2 Forecast Trend (2025-2034)
 - 5.5.4 Polyphenylene Sulfide (PPS)

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- 5.5.4.1 Historical Trend (2018-2024)
- 5.5.4.2 Forecast Trend (2025-2034)
- 5.6 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market by Application
 - 5.6.1 Aerospace
 - 5.6.1.1 Historical Trend (2018-2024)
 - 5.6.1.2 Forecast Trend (2025-2034)
 - 5.6.2 Automotive
 - 5.6.2.1 Historical Trend (2018-2024)
 - 5.6.2.2 Forecast Trend (2025-2034)
 - 5.6.3 Consumer Durables
 - 5.6.3.1 Historical Trend (2018-2024)
 - 5.6.3.2 Forecast Trend (2025-2034)
 - 5.6.4 Others
- 5.7 Global Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market by Region
 - 5.7.1 North America
 - 5.7.1.1 Historical Trend (2018-2024)
 - 5.7.1.2 Forecast Trend (2025-2034)
 - 5.7.2 Europe
 - 5.7.2.1 Historical Trend (2018-2024)
 - 5.7.2.2 Forecast Trend (2025-2034)
 - 5.7.3 Asia Pacific
 - 5.7.3.1 Historical Trend (2018-2024)
 - 5.7.3.2 Forecast Trend (2025-2034)
 - 5.7.4 Latin America
 - 5.7.4.1 Historical Trend (2018-2024)
 - 5.7.4.2 Forecast Trend (2025-2034)
 - 5.7.5 Middle East and Africa
 - 5.7.5.1 Historical Trend (2018-2024)
 - 5.7.5.2 Forecast Trend (2025-2034)
- 6 North America Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 6.1 United States of America
 - 6.1.1 Historical Trend (2018-2024)
 - 6.1.2 Forecast Trend (2025-2034)
 - 6.2 Canada
 - 6.2.1 Historical Trend (2018-2024)
 - 6.2.2 Forecast Trend (2025-2034)
- 7 Europe Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 7.1 United Kingdom
 - 7.1.1 Historical Trend (2018-2024)
 - 7.1.2 Forecast Trend (2025-2034)
 - 7.2 Germany
 - 7.2.1 Historical Trend (2018-2024)
 - 7.2.2 Forecast Trend (2025-2034)
 - 7.3 France
 - 7.3.1 Historical Trend (2018-2024)
 - 7.3.2 Forecast Trend (2025-2034)
 - 7.4 Italy

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- 7.4.1 Historical Trend (2018-2024)
- 7.4.2 Forecast Trend (2025-2034)
- 7.5 Others
- 8 Asia Pacific Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 8.1 China
 - 8.1.1 Historical Trend (2018-2024)
 - 8.1.2 Forecast Trend (2025-2034)
 - 8.2 Japan
 - 8.2.1 Historical Trend (2018-2024)
 - 8.2.2 Forecast Trend (2025-2034)
 - 8.3 India
 - 8.3.1 Historical Trend (2018-2024)
 - 8.3.2 Forecast Trend (2025-2034)
 - 8.4 ASEAN
 - 8.4.1 Historical Trend (2018-2024)
 - 8.4.2 Forecast Trend (2025-2034)
 - 8.5 Australia
 - 8.5.1 Historical Trend (2018-2024)
 - 8.5.2 Forecast Trend (2025-2034)
 - 8.6 Others
- 9 Latin America Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 9.1 Brazil
 - 9.1.1 Historical Trend (2018-2024)
 - 9.1.2 Forecast Trend (2025-2034)
 - 9.2 Argentina
 - 9.2.1 Historical Trend (2018-2024)
 - 9.2.2 Forecast Trend (2025-2034)
 - 9.3 Mexico
 - 9.3.1 Historical Trend (2018-2024)
 - 9.3.2 Forecast Trend (2025-2034)
 - 9.4 Others
- 10 Middle East and Africa Carbon Fibre Reinforced Thermoplastic (CFRTP) Composites Market Analysis
 - 10.1 Saudi Arabia
 - 10.1.1 Historical Trend (2018-2024)
 - 10.1.2 Forecast Trend (2025-2034)
 - 10.2 United Arab Emirates
 - 10.2.1 Historical Trend (2018-2024)
 - 10.2.2 Forecast Trend (2025-2034)
 - 10.3 Nigeria
 - 10.3.1 Historical Trend (2018-2024)
 - 10.3.2 Forecast Trend (2025-2034)
 - 10.4 South Africa
 - 10.4.1 Historical Trend (2018-2024)
 - 10.4.2 Forecast Trend (2025-2034)
 - 10.5 Others
- 11 Market Dynamics
 - 11.1 SWOT Analysis

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- 11.1.1 Strengths
- 11.1.2 Weaknesses
- 11.1.3 Opportunities
- 11.1.4 Threats
- 11.2 Porter's Five Forces Analysis
 - 11.2.1 Supplier's Power
 - 11.2.2 Buyer's Power
 - 11.2.3 Threat of New Entrants
 - 11.2.4 Degree of Rivalry
 - 11.2.5 Threat of Substitutes
- 11.3 Key Indicators for Demand
- 11.4 Key Indicators for Price
- 12 Competitive Landscape
 - 12.1 Supplier Selection
 - 12.2 Key Global Players
 - 12.3 Key Regional Players
 - 12.4 Key Player Strategies
 - 12.5 Company Profiles
 - 12.5.1 Covestro AG.
 - 12.5.1.1 Company Overview
 - 12.5.1.2 Product Portfolio
 - 12.5.1.3 Demographic Reach and Achievements
 - 12.5.1.4 Certifications
 - 12.5.2 Celanese Corporation
 - 12.5.2.1 Company Overview
 - 12.5.2.2 Product Portfolio
 - 12.5.2.3 Demographic Reach and Achievements
 - 12.5.2.4 Certifications
 - 12.5.3 Teijin Limited
 - 12.5.3.1 Company Overview
 - 12.5.3.2 Product Portfolio
 - 12.5.3.3 Demographic Reach and Achievements
 - 12.5.3.4 Certifications
 - 12.5.4 Toray Industries, Inc.
 - 12.5.4.1 Company Overview
 - 12.5.4.2 Product Portfolio
 - 12.5.4.3 Demographic Reach and Achievements
 - 12.5.4.4 Certifications
 - 12.5.5 SGL Carbon SE
 - 12.5.5.1 Company Overview
 - 12.5.5.2 Product Portfolio
 - 12.5.5.3 Demographic Reach and Achievements
 - 12.5.5.4 Certifications
 - 12.5.6 Others

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