

# **Composites Market by Fiber Type (Glass Fiber Composites, Carbon Fiber Composites, Natural Fiber Composites), Resin Type (Thermoset Composites, Thermoplastic Composites), Manufacturing Process, End-use Industry, and Region - Global Forecast to 2028**

<https://marketpublishers.com/r/C00879F9BDBEN.html>

Date: March 2024

Pages: 482

Price: US\$ 4,950.00 (Single User License)

ID: C00879F9BDBEN

## **Abstracts**

The global composites market size is projected to grow from 108.8 USD billion in 2023 and is estimated to reach 181.7 USD billion by 2028., at a CAGR of 10.8% between 2023 and 2028. Composite materials are transforming numerous industries by integrating different materials to form an enhanced composite. These materials provide exceptional versatility, allowing customization of characteristics such as durability, rigidity, electrical conductivity, and heat tolerance through careful selection and combination of components. Often presenting a substantial reduction in weight compared to traditional metals or materials, composites are perfectly suited for use in sectors like aerospace, transportation, and sports equipment.

“Carbon fiber composites are the fastest-growing fiber type of composites market in terms of value.”

Carbon fiber composites are projected to register the highest CAGR in terms of value between 2023 and 2028. Carbon fiber is renowned for its exceptional strength and lightweight properties, making it a superior. carbon fiber finds extensive application in industries such as aerospace, automotive, sports equipment, and construction due to its ability to enhance the performance and efficiency of products. In the aerospace industry, for instance, the use of carbon fiber composites contributes to significant weight savings, leading to improved fuel efficiency and reduced emissions.

“Thermoplastic composites is the fastest-growing resin type of composites, in terms of value.”

Thermoplastic composites have emerged as the most rapidly expanding category of resin types. In recent times, there has been a notable surge in the utilization of thermoplastic resins within the realm of fiber-reinforced composites. This type of resin, when combined with continuous fiber, yields structural composite products. A key benefit of employing thermoplastic resin as a matrix substance is its ability to be remolded and reused, distinguishing it from thermoset resin. As a result, composites made from thermoplastic resin are easily recyclable, leading to a significant rise in their adoption over the past decade.

“Resin Transfer Molding (RTM) manufacturing process is the second fastest-growing manufacturing process of composites, in terms of value.”

RTM utilizes a rigid, yet flexible, counter mold to enhance surface compression during the vacuum-assisted resin transfer process. This method leads to superior strength-to-weight ratios, increased laminate compaction, and elevated glass-to-resin ratios. It is primarily used for molding large, complexly shaped parts with a high-quality finish. Such components are typically found in automotive, construction, infrastructure, and aerospace sectors. The RTM technique is anticipated to see significant growth over the next five years, particularly due to its expanding use in the automotive and construction sectors within emerging markets.

“Wind energy is the second fastest-growing end-use industry of composites, in terms of value.”

The wind energy sector is forecasted to experience the second-highest compound annual growth rate (CAGR) over the next five years. Composite materials, known for their remarkable tensile strength, play a crucial role in constructing wind turbines, facilitating the production of large blades and increased energy output. Approximately 70–75% of the weight of wind blades consists of fiber reinforcement, typically combined with epoxy or unsaturated polymer resins. Fiberglass, renowned for its robust tensile strength, aids manufacturers in achieving larger blades and maximizing energy production. Moreover, fiberglass enhances the wind energy industry's resilience by enabling turbines to operate effectively in harsh environments, thanks to its corrosion-resistant properties.

“Asia Pacific is the fastest-growing composites market.”

The Asia Pacific region is forecasted to experience the highest compound annual growth rate (CAGR) in the composites sector in terms of value over the upcoming five years. This region holds significant potential for growth in the electrical and electronics industry. The continuous expansion of technologically advanced electronic devices has generated a substantial need for lightweight and strong electronic products. This escalating demand for cutting-edge electronic products across diverse applications has spurred innovations and advancements in the composites industry within Asia Pacific.

This study has been validated through primary interviews conducted with various industry experts globally. These primary sources have been divided into the following three categories:

By Company Type - Tier 1- 40%, Tier 2- 33%, and Tier 3- 27%

By Designation - C Level- 50%, Director Level- 30%, and Executives- 20%

By Region - North America- 15%, Europe- 50%, Asia Pacific- 20%, Middle East & Africa (MEA)-10%, Latin America-10%

The report provides a comprehensive analysis of company profiles listed below:

Owens Corning (US)

Toray Industries, Inc. (Japan)

Teijin Limited (Japan)

Mitsubishi Chemical Holdings Corporation (Japan)

Hexcel Corporation (US)

SGL Group (Germany)

Nippon Electric Glass Co. Ltd. (Japan)

Huntsman International LLC. (US)

## Solvay S.A. (Belgium)

### Research Coverage

This report covers the global composites market and forecasts the market size until 2028. The report includes the market segmentation – Fiber Type (Glass Fiber Composites, Carbon Fiber Composites, Natural Fiber Composites, and Other), Resin Type (Thermoset Composites and Thermoplastic Composites), Manufacturing process (Lay-up, filament winding, injection molding, pultrusion, compression molding, RTM, and others), End-use Industry (Aerospace & Defense, Wind Energy, Automotive & Transportation, Construction & Infrastructure, Marine, Pipes, Tanks & Pressure vessels, Electrical & Electronics, and Others) and Region (Europe, North America, Asia Pacific, South America, and Middle East & Africa). Porter's Five Forces analysis, along with the drivers, restraints, opportunities, and challenges, are discussed in the report. It also provides company profiles and competitive strategies adopted by the major players in the global composites market.

### Key benefits of buying the report:

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall composites market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

### The report provides insights on the following pointers:

Analysis of key drivers ( Increasing demand from aerospace applications

Extensive use of composites in construction & infrastructure industry, Growing demand from satellite parts manufacturing, Stringent eco-friendly regulations to drive adoption of composites in automotive applications, Increasing use of ATF and AFP technologies for manufacturing aircraft primary structures, Increasing focus on lightweight and high-performance materials), restraints (High processing and manufacturing costs, Lack of standardization in manufacturing

technologies

Limitations in use of carbon fiber composites in high-temperature aerospace applications), opportunities ( High demand for environmentally friendly electric vehicles, Growing adoption of natural fiber composites, Growing penetration of natural fiber composites and carbon fiber composites in emerging applications, Reduction of carbon fiber composite costs, Increasing use of carbon fiber composites in 3D printing, Increasing number of wind energy capacity installations

Development of advanced software tools for prepreg product development, High demand for carbon fiber composite in CNG and hydrogen storage.,) and challenges (Developing low-cost technologies, Issues related to recycling) influencing the growth of the composite market

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the composite market

Market Development: Comprehensive information about lucrative markets – the report analyses the composite market across varied regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the composite market

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like Owens Corning (US), Toray Industries, Inc. (Japan), Teijin Limited (Japan), Mitsubishi Chemical Holdings Corporation (Japan), Hexcel Corporation (US), SGL Group (Germany), Nippon Electric Glass Co. Ltd. (Japan), Huntsman International LLC. (US), Solvay S.A. (Belgium) among others in the composite market.

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## About

The report "Composites Market by Fiber Type (Glass, Carbon), Resin Type (Thermoset, Thermoplastic), Manufacturing Process (Layup, Filament Winding, Pultrusion), Application (Transportation, Aerospace & Defense, Wind Energy), Region - Global Forecast to 2022", The composites market is projected to grow from USD 72.58 Billion in 2016 to USD 115.43 Billion by 2022, at a CAGR of 8.13% between 2017 and 2022. The major factors fueling the growth of the composites market across the globe are the increasing use of composites in the wind energy, aerospace, and transportation applications.

### **Major companies profiled in this report include:**

Owen Corning (U.S.), Solvay (Belgium), SGL Group (Germany), Hexcel Corporation (U.S.), Koninklijke Ten Cate bv (Netherlands), Teijin Limited (Japan), Toray Industries, Inc. (Japan), Huntsman Corporation (U.S.), Jushi Group (China), Gurit (Switzerland) among others. These players have adopted various organic and inorganic strategies to strengthen their foothold in the composites market.

In the process of determining and verifying the sizes gathered through secondary research for the composites market, its segments and subsegments, extensive primary interviews have been conducted. The breakdown of these primary interviews has been given as follows:

By Company Type: Tier 1—10%, Tier 2—25%, and Tier 3—65%.

By Designation: C-level—10%, Director Level—30%, and Others—60%

By Region: North America—20%, Europe—15%, Asia-Pacific—45%, Latin America—11%, and the Middle East & Africa—9%

### **Increasing use of composites in the aerospace & defense applications is expected to drive the growth of the composites market from 2017 to 2022.**

The use of composite materials and related core materials in the aerospace & defense applications has gained momentum in the past few decades. The latest Airbus aircraft, A350XWB is 53% made of composite materials as compared to old aircraft models,

where only 2%–5% of composites were used in an aircraft. The main reasons for the growing use of composites in aircraft are the reduction in the weight of aircraft and high resistance offered by them to corrosion. Moreover, the maintenance costs of aircraft made from composites are lower in comparison to the aircraft made from traditional materials.

**Among fiber types, the glass fiber composites segment is projected to lead the composites market during the forecast period in terms of value.**

Glass fibers account for over 90% of the reinforcements that are used in the manufacturing of composites across the globe. There is an increased demand for glass fiber composites in the aerospace, automotive, wind energy, and construction & infrastructure applications, owing to their lightweight, high inherent strength, weather-resistant finish, and variety in surface textures offered by them. As the demand for glass fiber composites is increasing across the globe, several companies are investing in setting up their glass fiber composites manufacturing plants in the emerging economies such as China, India, etc. One of the major composite manufacturing companies, Owens Corning (U.S.), signed a strategic alliance with two China-based glass fiber manufacturing companies, namely, Xingtai Jinniu and Taishan Fiberglass in 2013 to enhance its supply of customized glass fiber reinforcements in the Asia-Pacific region.

**The Asia-Pacific region is the largest market for composites across the globe.**

The Asia-Pacific region is the largest consumer of composites across the globe. Moreover, the Asia-Pacific composites market is projected to grow at the highest CAGR in terms of volume during the forecast period from 2017 to 2022. The increasing use of composites in the aerospace, wind energy, and transportation applications is the major factor driving the growth of the Asia-Pacific composites market. Moreover, the presence of major manufacturers of carbon fibers, growing economy, and rapid urbanization in the region are also driving the growth of the Asia-Pacific composites market. In addition, the use of glass fiber composites for manufacturing printed circuited boards (PCBs) in the region is also fueling the growth of the Asia-Pacific composites market.

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