

# **Global Carbon Fiber Market Analysis: Plant Capacity, Production, Operating Efficiency, Demand & Supply, End-User Industries, Sales Channel, Regional Demand, Foreign Trade, Company Share, 2015-2035**

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## **Abstracts**

The global Carbon Fiber market has grown remarkably to reach approximately 150 thousand tonnes in 2021 and is expected to grow at an amazing CAGR of 7.55% during the forecast period until 2035.

Carbon fiber-reinforced strands are known as Carbon Fiber. These substances are all organic polymers, which have lengthy chains of molecules joined by carbon atoms. Around 90% of carbon fiber is manufactured by using Polyacrylonitrile (PAN) precursor. Rest 10% is manufactured from rayon or petroleum pitch-based precursor. The composition of raw material varies from company to company considered as the trade secret. Manufacturing process of carbon is combination of both chemical and mechanical process. Initial step involves stabilization of the molecule by heating at a temperature range of 390-590 degree Celsius. After stabilizing the material, it is again heated at very high temperature from 1830-5500 degree Celsius, during this process oxygen is kept out to prevent the fibers from burning at high temperature. For this process some companies utilise either two or more furnaces in order to have better control of heating rate. This whole process is known as carbonization. Later the container is slightly oxidised to provide better chemical and mechanical bonding properties. Surface treatment process must be performed under careful precision, even a slight error could result in defect in the carbon fiber. Finally, the fiber is coated with compatible materials such as epoxy, polyester, nylon, urethane to protect it during winding & weaving. This complex and tough carbon fiber process has a lot of technological barriers.

Carbon fiber has properties like light weight nature, high strength, exceptional stiffness, thermal stability etc. It is five times stronger than steel. Physical and mechanical properties of Carbon Fiber make it an efficient and reliable material for industries like aerospace, defence, sports equipment, wind energy turbines, automotive industry, and others.

Aerospace & Defense sector is market driving factor of Carbon fiber for its excellent properties. In the aerospace industry over 50% of aircraft material is made up of composites (carbon fiber). In this sector, surging demand of light weight vehicle and drones is anticipated to swell the Carbon Fiber market in the forecast period. Aerospace & Defense sector had consumed around 50% of total carbon fiber produced in 2021. In the forecast period wind energy is anticipated to play significant role in the growth of carbon fiber. The global Carbon Fiber market will most likely reach 400 thousand tonnes by 2035.

Based on demand by region, the Europe is dominating the Carbon Fiber market. It is mainly due to presence of various aircraft and automobile manufacture in the region. Whereas demand in APAC region is going to increase over the period. Countries like China and India are shifting from conventional fossil fuel to more sustainable energy methods, which will most likely increase the demand of Carbon Fiber in the region. On terms of production, USA is taking the lead along with other western countries like UK and Germany. Additionally, Japanese firm such as Toray industries, Mitsubishi, Teijin limited has their own carbon fiber technology which makes them a global player in the market. Although China's carbon fiber market is anticipated to grow in the forecast period. Chinese companies such as Zhongfu Shenying, Kangde Composites and others has already planned for new carbon fiber capacity in the coming years.

Based on the end-user industry, the global Carbon Fiber market is segregated into Aerospace & Defense, Automotive, Sporting Goods, Wind Energy, Civil Engineering, and Others. Although, the Aerospace & Defense is the leading as a consumer of Carbon Fiber. In 2021, this industry held about 50% of the Carbon Fiber market and is anticipated to show this trend in the forecast period.

Major players in the production of Global Carbon Fiber are Toray Industries, Inc., Mitsubishi chemical carbon fiber & composites, Hexcel Corporation, Teijin Carbon Fibers, Inc., SGL Group, Zhongfu Shenying Carbon Fiber, Formosa Plastics, Jiangsu Hengshen Co., Ltd., Solvay Composites, Hyosung Advanced Materials, China Composites Group Corp., Ltd, Weihai Guangwei Composite Materials Co., Ltd., and Jilin Jinggong Carbon Fiber Co., Ltd.'s.

Years considered for this report:

Historical Period: 2015- 2021

Base Year: 2021

Estimated Year: 2022

Forecast Period: 2023-2035

Objective of the Study:

To assess the demand-supply scenario of Carbon Fiber which covers production, demand and supply of Carbon Fiber market in the globe.

To analyse and forecast the market size of Carbon Fiber

To classify and forecast Global Carbon Fiber market based on end-use and regional distribution.

To examine competitive developments such as expansions, mergers & acquisitions, etc., of Carbon Fiber market in the globe.

To extract data for Global Carbon Fiber market, primary research surveys were conducted with Carbon Fiber manufacturers, suppliers, distributors, wholesalers and Traders. While interviewing, the respondents were also inquired about their competitors. Through this technique, ChemAnalyst was able to include manufacturers that could not be identified due to the limitations of secondary research. Moreover, ChemAnalyst analyzed various segments and projected a positive outlook for Global Carbon Fiber market over the coming years.

ChemAnalyst calculated Carbon Fiber demand in the globe by analyzing the historical data and demand forecast which was carried out considering the historical extraction and supply and demand of Carbon Fiber across the globe. ChemAnalyst sourced these values from industry experts, and company representatives and externally validated

through analyzing historical sales data of respective manufacturers to arrive at the overall market size. Various secondary sources such as company websites, association reports, annual reports, etc., were also studied by ChemAnalyst.

#### Key Target Audience:

Carbon Fiber manufacturers and other stakeholders

Organizations, forums and alliances related to Carbon Fiber distribution

Government bodies such as regulating authorities and policy makers

Market research organizations and consulting companies

The study is useful in providing answers to several critical questions that are important for industry stakeholders such as Carbon Fiber manufacturers, customers and policy makers. The study would also help them to target the growing segments over the coming years (next two to five years), thereby aiding the stakeholders in taking investment decisions and facilitating their expansion.

#### Report Scope:

In this report, Global Carbon Fiber market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

Market, by End-use: Aerospace & Defense, Automotive, Sporting Goods, Wind Energy, Civil Engineering, and Others

Market, by Sales Channel: Direct Sale and Indirect Sale

Market, by Region: North America, Europe, Asia Pacific, Middle East and Africa, and South America.

#### Available Customizations:

With the given market data, ChemAnalyst offers customizations according to a

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company's specific needs.

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### **1. CAPACITY BY COMPANY**

On our online platform, you can stay up to date with essential manufacturers and their current and future operation capacity on a practically real-time basis for Carbon Fiber.

### **2. CAPACITY BY LOCATION**

To better understand the regional supply of Carbon Fiber by analyzing its manufacturers' location-based capacity.

### **3. PRODUCTION BY COMPANY**

Study the historical annual production of Carbon Fiber by the leading players and forecast how it will grow in the coming years.

### **4. DEMAND BY END- USE**

Discover which end-user industry (Aerospace & Defense, Automotive, Sporting Goods, Wind Energy, Civil Engineering, and Others) are creating a market and the forecast for the growth of the Carbon Fiber market.

### **5. DEMAND BY REGION**

Analyzing the change in demand of Carbon Fiber in different regions, i.e., North America, Europe, Asia Pacific, Middle East and Africa, and South America, that can direct you in mapping the regional demand.

### **6. DEMAND BY SALES CHANNEL (DIRECT AND INDIRECT)**

Multiple channels are used to sell Carbon Fiber. Our sales channel will help in analyzing whether distributors and dealers or direct sales make up most of the industry's sales.

### **7. DEMAND-SUPPLY GAP**

Determine the supply-demand gap to gain information about the trade surplus or deficiency of Carbon Fiber.

## **8. COMPANY SHARE**

Figure out what proportion of the market share of Carbon Fiber is currently held by leading players across the globe.

## **9. COUNTRY-WISE EXPORT**

Get details about quantity of Carbon Fiber exported by major countries.

## **10. COUNTRY-WISE IMPORT**

Get details about quantity of Carbon Fiber imported by major countries.

## **11. PRICING ANALYSIS & FORECAST**

Analyze historical prices since 2015 & Forecast on three months rolling period for next 12 months.

Years considered for this report:

Historical Period: 2015- 2022

Base Year: 2022

Estimated Year: 2023

Forecast Period: 2024-2032

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