

# CF & CFRP Market by Source (Virgin, Recycled), Precursor (PAN, Pitch, Rayon), Resin (Thermosetting, Thermoplastic), Manufacturing Process, End-use Industry, and Region - Global Forecast to 2025

<https://marketpublishers.com/r/C403CFF7BABEN.html>

Date: October 2020

Pages: 228

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

ID: C403CFF7BABEN

## Abstracts

The global CF & CFRP market size is projected to grow from USD 17.5 billion in 2020 to USD 31.5 billion by 2025, at a CAGR of 12.4% during the same period. The CF & CFRP materials offer exceptional properties, such as low weight, stiffness, strength, tenacity, density, thermal & electrical conductivity, fatigue, and corrosion resistance. Owing to these outstanding properties, conventional materials, such as aluminum and steel, are less preferred in high-performance applications in various end-use industries, including aerospace & defense, wind energy, sporting goods, and among others. However, the global pandemic disease COVID-19 has forced the composite component manufacturers to shut down their operations partially, which is expected to decrease the demand for CF & CFRP in 2020.

“The virgin carbon fiber segment of Carbon Fiber to be the fastest-growing segment.”

The carbon fiber based on the source is segmented into virgin carbon fiber and recycled carbon fiber. Virgin is made from precursors such as PAN and pitch. These fibers find applications in various aerospace & defense, wind energy, sporting goods, and other industries. Virgin carbon fiber offers better thermal and mechanical properties than recycled carbon fiber. They are preferred over recycled carbon fiber in high-end aerospace applications.

“PAN carbon fiber to be the faster-growing precursor type, in terms of value.”

C PAN-based carbon fiber is a type of fiber produced by the carbonization of PAN

precursor. Having high tensile strength and high elastic modulus, it is extensively used for structural material composites in aerospace & defense, automotive, and sporting goods industries. These properties are driving the use of PAN carbon fiber in various end-use industries.

Owing to the COVID-19 pandemic, the new aircraft deliveries and wind energy installations are expected to reduce in 2020, which will result in reduced demand for PAN carbon fiber from these industries. The demand is expected to recover after 2020.

“The thermoplastic segment to be the fastest-growing resin type, in terms of value, in the CF & CFRP market.”

The application of thermoplastic polymer as a matrix material in CFRP composites has grown significantly in recent years. The thermoplastic resin is used with continuous fiber to create structural composite products. The main advantage of thermoplastic resin as matrix material is that, unlike thermoset resin, the composite formed can be reshaped and reformed. The composite formed is also easily recyclable. These factors are expected to drive the thermoplastic resin in the CFRP market during the forecast period.

The demand for thermoplastic CFRP is expected to decline in 2020 due to the COVID-19 pandemic, as supply chain restrictions and lockdown scenario has created disruption in various industries. Thermoplastic CFRP finds major applications in automotive components and aircraft interior components. These industries are one of the most affected industries in the first two quarters of 2020, which has resulted in less demand for thermoplastic CFRP components.

“The filament winding to be the fastest-growing manufacturing process, in terms of value, in the CF & CFRP market.”

The filament winding process produces hollow or circular components such as compressed air tanks, high-pressure CO<sub>2</sub> tanks & bottles, water softener systems, rescue air tanks, sailboat masts, CNG tanks, light poles, and other construction materials. This automated process is used to make highly engineered structures. The increased demand for CFRP from CNG and CHG tanks applications is expected to drive the filament winding CFRP market during the forecast period.

The COVID-19 pandemic has reduced the demand for CFRP tanks. Due to the lockdown situation, the demand for CFRP tanks has reduced from the gas transportation industry. The demand is expected to recover after the pandemic situation.

“The pipe & tank to be the fastest-growing end-use industry, in terms of value, in the CF & CFRP market.”

There is a significant rise in the use of CFRP in pressure vessels and cylinders due to their lightweight property. The use of such materials makes tank 20%–25% lighter in comparison to steel cylinders. Carbon fiber composites are used in pressure tanks where stiffness and weight considerations are critical. The superior mechanical properties of CFRP pipes such as anti-corrosion properties, low conductivity, and longer lifecycles are leading to the increase in CFRP use in the oil & gas, fuel, water & wastewater sewage, pulp & paper, chemical, and marine & offshore industries CNG-driven vehicles are using CNG tanks made of CFRP, which help to reduce the overall vehicle weight and improve mileage. The increasing applications of Type III and Type IV cylinders are driving the CFRP demand in the pipe & tank end-use industry.

Due to the pandemic, new infrastructural developments in desalination plants and water & wastewater sewage industries are expected to remain low. It will result in lower demand for composite materials from these industries.

“APAC is projected to be the fastest-growing CF & CFRP industry.”

APAC is projected to be the fastest-growing CF & CFRP market during the forecast period. The region comprises countries such as Japan, China, South Korea, and Taiwan, having significant potential owing to the presence of established raw material suppliers, product manufacturers, and increasing new aircraft deliveries and wind energy installations in the region. There is a high demand for CF & CFRP from the wind energy, sporting goods, and aerospace industry in the region. However, COVID-19 has negatively affected these industries in the APAC region. Japan, China, and Malaysia provide various components to aircraft manufacturers; China is the world's largest wind energy installer. The COVID-19 pandemic has resulted in less demand for the new aircraft and less wind energy installations, which are expected to reduce composite consumption in these countries in 2020.

This study has been validated through primaries 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- 20%, and Others- 30%

By Region- North America- 15%, Europe- 50%, APAC- 20%, Latin America-5%, MEA-10%,

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

Toray Industries, Inc. (Japan)

Mitsubishi Chemical Holdings (Japan)

Hexcel Corporation (US)

Teijin Limited (Japan)

SGL Group (Germany)

Solvay (Belgium)

Hyosung (South Korea)

Formosa Plastic Corporation (Taiwan)

Dowaksa (Turkey)

Kureha Corporation (Japan)

## Research Coverage

This report covers the global CF & CFRP and forecasts the market size until 2025. The report includes the market segmentation – By Source (Virgin, Recycled), Precursor Type (PAN, Pitch, and Rayon), Resin (Thermosetting and Thermoplastic), Manufacturing Process (Lay-up, Compression Molding, Resin Transfer Molding, Injection Molding, Filament Winding, Pultrusion, Others), End-Use Industry (Aerospace & defense, wind energy, automotive, sporting goods, marine, civil engineering, electrical & electronics, medical, and Others)) and Region (Europe, North America, APAC, Latin America, and MEA). Porter's Five Forces analysis and 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 CF & CFRP.

Key benefits of buying the report:

The report will help market leaders/new entrants in this market in the following ways:

1. This report segments the global CF & CFRP comprehensively. It provides the closest approximations of the revenues for the overall market and the sub-segments across different verticals and regions.
2. The report helps stakeholders understand the pulse of the CF & CFRP industry and provides them with information on key market drivers, restraints, challenges, and opportunities.
3. This report will help stakeholders to understand competitors better and gain more insights to better their position in their businesses. The competitive landscape section includes the competitor ecosystem and expansion.

Reasons to buy the report:

The report will help market leaders/new entrants in this market by providing them with the closest approximations of the revenues for the overall CF & CFRP and the sub-segments. It will help stakeholders to understand the competitive landscape and gain more insights to position their businesses and market strategies in a better way. The report will also help stakeholders understand the pulse of the market and provide them with information on key market drivers, restraints, opportunities, and challenges.

## Contents

### 1 INTRODUCTION

- 1.1 OBJECTIVES OF THE STUDY
- 1.2 MARKET DEFINITION
- 1.3 MARKET SCOPE
  - FIGURE 1 CF & CFRP MARKET SEGMENTATION
  - FIGURE 2 REGIONS COVERED
    - 1.3.1 YEARS CONSIDERED FOR THE STUDY
- 1.4 CURRENCY
- 1.5 UNIT CONSIDERED
- 1.6 STAKEHOLDERS
- 1.7 SUMMARY OF CHANGES

### 2 RESEARCH METHODOLOGY

- 2.1 RESEARCH DATA
  - FIGURE 3 CF & CFRP MARKET: RESEARCH DESIGN
    - 2.1.1 SECONDARY DATA
      - 2.1.1.1 Key data from secondary sources
    - 2.1.2 PRIMARY DATA
      - 2.1.2.1 Key data from primary sources
      - 2.1.2.2 Key industry insights
      - 2.1.2.3 Breakdown of primary interviews
  - 2.2 MARKET SIZE ESTIMATION
    - 2.2.1 SUPPLY-SIDE ANALYSIS
      - FIGURE 4 MARKET NUMBER ESTIMATION
      - FIGURE 5 CARBON FIBER PRODUCTION CAPACITY
    - 2.2.2 DEMAND-SIDE ANALYSIS
      - FIGURE 6 AEROSPACE & DEFENSE CFRP MARKET ESTIMATION
    - 2.2.3 SEGMENT ANALYSIS
    - 2.2.4 FORECAST
  - 2.3 DATA TRIANGULATION
    - FIGURE 7 CF & CFRP MARKET: DATA TRIANGULATION
  - 2.4 ASSUMPTIONS
  - 2.5 LIMITATIONS

### 3 EXECUTIVE SUMMARY

FIGURE 8 PITCH PRECURSOR ACCOUNTED FOR LARGEST SHARE

FIGURE 9 VIRGIN CARBON FIBER ACCOUNTED FOR LARGER SHARE

FIGURE 10 THERMOSETTING RESIN ACCOUNTED FOR LARGER SHARE

FIGURE 11 LAY-UP MANUFACTURING PROCESS IS MOST DOMINANT SEGMENT  
IN OVERALL MARKET

FIGURE 12 AEROSPACE & DEFENSE EXPECTED TO DOMINATE CFRP MARKET  
DURING THE FORECAST PERIOD

FIGURE 13 APAC TO BE FASTEST-GROWING CFRP MARKET BETWEEN 2020  
AND 2025

## **4 PREMIUM INSIGHTS**

4.1 ATTRACTIVE OPPORTUNITIES IN THE CF & CFRP MARKET

FIGURE 14 HIGH DEMAND FROM AEROSPACE & DEFENCE AND WIND ENERGY  
TO DRIVE THE MARKET

4.2 CFRP MARKET, BY END-USE INDUSTRY AND REGION, 2019

FIGURE 15 APAC ACCOUNTED FOR THE LARGEST SHARE OF THE GLOBAL  
MARKET

4.3 CARBON FIBER MARKET, BY SOURCE

FIGURE 16 RECYCLED CARBON FIBER LEADS THE DEMAND

4.4 CARBON FIBER MARKET, BY PRECURSOR TYPE

FIGURE 17 PAN PRECURSOR DOMINATES THE OVERALL MARKET

4.5 CFRP MARKET, BY RESIN TYPE

FIGURE 18 THERMOSETTING RESIN ACCOUNT FOR LARGER SHARE OF THE  
MARKET

4.6 CFRP MARKET, BY MANUFACTURING PROCESS

FIGURE 19 PULTRUSIONS PROCESS ACCOUNTED FOR THE LARGEST SHARE

4.7 CFRP MARKET, BY END-USE INDUSTRY

FIGURE 20 WIND ENERGY ACCOUNTED FOR LARGEST CONSUMPTION OF  
CFRP

4.8 CFRP MARKET, BY KEY COUNTRIES

FIGURE 21 CHINA TO REGISTER THE HIGHEST CAGR

## **5 MARKET OVERVIEW**

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 22 DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES IN CF



## & CFRP MARKET

### 5.2.1 DRIVERS

5.2.1.1 Government stimulus packages for aerospace and other industries for COVID-19 crisis

5.2.1.2 Increase in demand for fuel-efficient vehicles

5.2.1.3 Increasing demand from wind energy industry

### 5.2.2 RESTRAINTS

5.2.2.1 Decrease in number of commercial aircraft deliveries

5.2.2.2 Disruption in supply chain and lower production capacity utilization due to COVID-19 pandemic

5.2.2.3 High cost of carbon fiber

## TABLE 1 COST STRUCTURE WITH CURRENT TECHNOLOGY

### 5.2.3 OPPORTUNITIES

5.2.3.1 Reduction in the cost of carbon fiber

5.2.3.2 Potential opportunities in new applications

5.2.3.3 Growing demand from emerging markets

### 5.2.4 CHALLENGES

5.2.4.1 Maintaining uninterrupted supply chain and operating at full capacity

5.2.4.2 Liquidity crunch

5.2.4.3 Development of technology to reduce cycle time

## 5.3 PORTER'S FIVE FORCES ANALYSIS

### FIGURE 23 CF & CFRP COMPOSITES MARKET: PORTER'S FIVE FORCES ANALYSIS

5.3.1 THREAT OF NEW ENTRANTS

5.3.2 THREAT OF SUBSTITUTES

5.3.3 BARGAINING POWER OF SUPPLIERS

5.3.4 BARGAINING POWER OF BUYERS

5.3.5 INTENSITY OF COMPETITIVE RIVALRY

## 5.4 VALUE CHAIN ANALYSIS

### FIGURE 24 VALUE CHAIN ANALYSIS: MAXIMUM VALUE IS ADDED DURING CFRP COMPOSITES DESIGN & PROCESSING PHASE

## 5.5 VALUE CHAIN ANALYSIS AND IMPACT OF COVID-19

5.5.1 RAW MATERIALS

5.5.2 INTERMEDIATES

5.5.3 MOLDER

5.5.4 OEM/ASSEMBLY

## 5.6 PRICING ANALYSIS

## 5.7 MANUFACTURING PROCESS ANALYSIS

## 5.8 PATENT ANALYSIS



5.8.1 METHODOLOGY

5.8.2 DOCUMENT TYPE

FIGURE 25 PUBLICATION TRENDS – FROM 2011 TO 2019

5.8.3 INSIGHT

FIGURE 26 JURISDICTION ANALYSIS

5.8.4 TOP APPLICANTS OF CFRP

FIGURE 27 TOP APPLICANTS OF CFRP

5.9 PESTEL ANALYSIS

5.9.1 POLITICAL

5.9.2 ECONOMICAL

5.9.3 SOCIAL

5.9.4 TECHNOLOGICAL

5.9.5 ENVIRONMENTAL

5.9.6 LEGAL

5.10 CASE STUDY

## **6 MACROECONOMIC OVERVIEW AND KEY TRENDS**

6.1 INTRODUCTION

6.2 TRENDS AND FORECAST OF GDP

TABLE 2 ANNUAL PERCENTAGE CHANGE OF GDP, BY REGION, APRIL 2020

6.3 IMPACT OF COVID-19 ON AEROSPACE INDUSTRY

TABLE 3 NUMBER OF AIRPLANE DELIVERIES, BY MANUFACTURERS, 2019

6.3.1 SHORT-TERM STRATEGIES TO MANAGE COST STRUCTURE AND SUPPLY CHAINS

6.3.2 NEW OPPORTUNITIES

6.4 IMPACT OF COVID-19 ON AUTOMOTIVE INDUSTRY

6.4.1 SHORT-TERM STRATEGIES TO MANAGE COST STRUCTURE AND SUPPLY CHAINS

6.4.2 IMPACT ON ELECTRIC VEHICLE (EV) DEMAND DUE TO LOWER OIL PRICES

6.4.3 NEW OPPORTUNITIES

6.5 IMPACT OF COVID-19 ON WIND ENERGY INDUSTRY

6.5.1 SHORT-TERM STRATEGIES TO MANAGE COST STRUCTURE AND SUPPLY CHAINS

6.5.2 NEW OPPORTUNITIES

## **7 CARBON FIBER MARKET, BY SOURCE**

## 7.1 INTRODUCTION

FIGURE 28 VIRGIN CARBON FIBER SEGMENT DOMINATES OVERALL CARBON FIBER MARKET

TABLE 4 CARBON FIBER MARKET SIZE, BY SOURCE, 2018–2025 (USD MILLION)

TABLE 5 CARBON FIBER MARKET SIZE, BY SOURCE, 2018–2025 (KILOTON)

## 7.2 VIRGIN CARBON FIBER

7.2.1 VIRGIN CARBON OFFERS BETTER THERMAL AND MECHANICAL PROPERTIES THAN RECYCLED CARBON FIBER

TABLE 6 VIRGIN CARBON FIBER MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 7 VIRGIN CARBON FIBER MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

## 7.3 RECYCLED CARBON FIBER

7.3.1 EUROPE LEADS THE DEMAND FOR RECYCLED CARBON FIBER

TABLE 8 RECYCLED CARBON FIBER MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 9 RECYCLED CARBON FIBER MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

# 8 CARBON FIBER MARKET, BY PRECURSOR TYPE

## 8.1 INTRODUCTION

FIGURE 29 PAN PRECURSOR SEGMENT DOMINATES THE CF & CFRP MARKET

TABLE 10 CF MARKET SIZE, BY PRECURSOR TYPE, 2018–2025 (USD MILLION)

TABLE 11 CF MARKET SIZE, BY PRECURSOR TYPE, 2018–2025 (KILOTON)

## 8.2 POLYACRYLONITRILE (PAN-BASED) CARBON FIBERS

8.2.1 PAN-BASED CARBON FIBER, BY TOW SIZE

8.2.1.1 Small-tow (24K)

8.2.1.2.1 Wind energy is major application of large-tow carbon fiber

TABLE 12 PAN-BASED CF MARKET SIZE, BY TOW SIZE, 2018-2025 (USD MILLION)

TABLE 13 PAN-BASED CF MARKET SIZE, BY TOW SIZE, 2018-2025 (KILOTON)

## 8.3 PITCH-BASED CARBON FIBER

TABLE 14 PITCH-BASED CF MARKET SIZE, BY TOW SIZE, 2018-2025 (USD MILLION)

TABLE 15 PITCH-BASED CF MARKET SIZE, BY TOW SIZE, 2018-2025 (KILOTON)

## 8.4 RAYON-BASED CARBON FIBER

# 9 CFRP MARKET, BY RESIN TYPE

## 9.1 INTRODUCTION

FIGURE 30 THERMOSETTING CFRP EXPECTED TO DOMINATE CFRP MARKET, 2018- 2025

TABLE 16 CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (USD MILLION)

TABLE 17 CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (KILOTON)

## 9.2 IMPACT OF COVID-19 ON RESIN TYPE

### 9.3 THERMOSETTING CFRP

TABLE 18 THERMOSETTING CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (USD MILLION)

TABLE 19 THERMOSETTING CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (KILOTON)

#### 9.3.1 EPOXY

9.3.1.1 Epoxy resin is preferred in high-end applications

#### 9.3.2 VINYL ESTER

9.3.2.1 Vinyl ester resin find applications in transportation, marine, and pipe & tank industries

#### 9.3.3 POLYESTER

9.3.3.1 Polyester is cost-competitive resin

#### 9.3.4 OTHERS

FIGURE 31 EUROPE EXPECTED TO DOMINATE THERMOSETTING CFRP MARKET, 2018–2025

TABLE 20 THERMOSETTING CFRP MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 21 THERMOSETTING CFRP MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

### 9.4 THERMOPLASTIC CFRP

TABLE 22 THERMOPLASTIC CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (USD MILLION)

TABLE 23 THERMOPLASTIC CFRP MARKET SIZE, BY RESIN TYPE, 2018–2025 (KILOTON)

#### 9.4.1 POLYETHERETHEREKETON (PEEK)

9.4.1.1 PEEK finds extensive use in aerospace & defense applications

#### 9.4.2 POLYAMIDE (PA)

9.4.2.1 Resistance to wear, heat, and chemicals supporting growth of polyamide segment

#### 9.4.3 POLYPROPYLENE (PP)

9.4.3.1 Polypropylene-based thermoplastic composites have huge demand in automotive applications

#### 9.4.4 OTHERS

TABLE 24 THERMOPLASTIC CFRP MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 25 THERMOPLASTIC CFRP MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

## **10 CFRP MARKET, BY MANUFACTURING PROCESS**

### 10.1 INTRODUCTION

FIGURE 32 LAY-UP MANUFACTURING PROCESS EXPECTED TO DOMINATE OVERALL CFRP MARKET, 2020–2025

TABLE 26 CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 27 CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

### 10.2 COVID-19 IMPACT ON MANUFACTURING PROCESSES

#### 10.3 LAY-UP PROCESS

10.3.1 AEROSPACE & DEFENSE END-USE INDUSTRY DRIVES THE CFRP MARKET IN LAY-UP PROCESS

FIGURE 33 NORTH AMERICA EXPECTED TO DOMINATE MARKET FOR LAY-UP PROCESS SEGMENT, 2018–2025

TABLE 28 LAY-UP PROCESS MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 29 LAY-UP PROCESS MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

#### 10.4 COMPRESSION MOLDING PROCESS

10.4.1 COMPRESSION MOLDING PROCESS ENABLES SHORT CYCLE TIME AND A HIGH PRODUCTION RATE

TABLE 30 COMPRESSION MOLDING PROCESS MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 31 COMPRESSION MOLDING PROCESS MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

#### 10.5 RESIN TRANSFER MOLDING (RTM) PROCESS

10.5.1 RTM PROCESS USED FOR COMPLEX AND THREE DIMENSIONAL COMPONENTS

TABLE 32 RTM PROCESS MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 33 RTM PROCESS MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

#### 10.6 FILAMENT WINDING PROCESS

10.6.1 PIPE & TANK END-USE INDUSTRY DRIVES THE CFRP MARKET IN FILAMENT WINDING PROCESS

TABLE 34 FILAMENT WINDING PROCESS MARKET SIZE, BY REGION, 2018–2025

(USD MILLION)

TABLE 35 FILAMENT WINDING PROCESS MARKET SIZE, BY REGION, 2018–2025  
(KILOTON)

10.7 INJECTION MOLDING PROCESS

10.7.1 AUTOMOTIVE AND ELECTRICAL & ELECTRONICS END-USE INDUSTRIES  
DRIVES THE CFRP MARKET IN INJECTION MOLDING PROCESS

TABLE 36 INJECTION MOLDING PROCESS MARKET SIZE, BY REGION, 2018–2025  
(USD MILLION)

TABLE 37 INJECTION MOLDING PROCESS MARKET SIZE, BY REGION, 2018–2025  
(KILOTON)

10.8 PULTRUSION PROCESS

10.8.1 WIND ENERGY END-USE INDUSTRY IS LARGEST CONSUMER OF CFRP  
PULTRUDED COMPONENTS

TABLE 38 PULTRUSION PROCESS MARKET SIZE, BY REGION, 2018–2025 (USD  
MILLION)

TABLE 39 PULTRUSION PROCESS MARKET SIZE, BY REGION, 2018–2025  
(KILOTON)

10.9 OTHER PROCESSES

TABLE 40 OTHER PROCESSES MARKET SIZE, BY REGION, 2018–2025 (USD  
MILLION)

TABLE 41 OTHER PROCESSES MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

## **11 CFRP MARKET, BY END-USE INDUSTRY**

11.1 INTRODUCTION

FIGURE 34 AEROSPACE & DEFENSE INDUSTRY TO LEAD CONSUMPTION OF  
CFRP IN 2019

TABLE 42 CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD  
MILLION)

TABLE 43 CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

11.2 AEROSPACE & DEFENSE

11.2.1 INTERIOR PARTS

11.2.1.1 Phenolic and thermoplastic composites mainly used in aircraft interior  
structures

11.2.2 EXTERIOR PARTS

11.2.2.1 Fuselage, wings, rotor blades, tail boom, and radomes are major exterior  
parts

FIGURE 35 NORTH AMERICA EXPECTED TO DOMINATE CFRP MARKET IN  
AEROSPACE & DEFENSE, 2020 VS. 2025

TABLE 44 DEMAND FOR AIRPLANES, BY REGION, 2019–2038

TABLE 45 CFRP MARKET SIZE IN AEROSPACE & DEFENSE, BY REGION, 2018–2025 (USD MILLION)

TABLE 46 CFRP MARKET SIZE IN AEROSPACE & DEFENSE, BY REGION, 2018–2025 (KILOTON)

TABLE 47 CFRP USED IN MAJOR AIRCRAFT, BY VOLUME, 1981–2019

### 11.3 WIND ENERGY

#### 11.3.1 WIND BLADES

11.3.1.1 Carbon fiber widely used for making spar caps

TABLE 48 CFRP MARKET SIZE IN WIND ENERGY, BY REGION, 2018–2025 (USD MILLION)

TABLE 49 CFRP MARKET SIZE IN WIND ENERGY, BY REGION, 2018–2025 (KILOTON)

TABLE 50 WIND ENERGY INSTALLATIONS, 2019

### 11.4 AUTOMOTIVE

#### 11.4.1 INTERIOR PARTS

11.4.1.1 Seat backs, headliners, package trays, and dashboards are major automotive interior parts

#### 11.4.2 EXTERIOR PARTS

11.4.2.1 Exterior parts are major applications in automotive industry

TABLE 51 CFRP MARKET SIZE IN AUTOMOTIVE, BY REGION, 2018–2025 (USD MILLION)

TABLE 52 CFRP MARKET SIZE IN AUTOMOTIVE, BY REGION, 2018–2025 (KILOTON)

### 11.5 SPORTING GOODS

11.5.1 APAC LEADS THE DEMAND IN SPORTING GOODS INDUSTRY

TABLE 53 CFRP MARKET SIZE IN SPORTING GOODS, BY REGION, 2020–2025 (USD MILLION)

TABLE 54 CFRP MARKET SIZE IN SPORTING GOODS, BY REGION, 2018–2025 (KILOTON)

### 11.6 CIVIL ENGINEERING

11.6.1 RESTORATIONS OF OLD STRUCTURES DRIVING THE USE OF CARBON FIBER

TABLE 55 CFRP MARKET SIZE IN CIVIL ENGINEERING, BY REGION, 2018–2025 (USD MILLION)

TABLE 56 CFRP MARKET SIZE IN CIVIL ENGINEERING, BY REGION, 2018–2025 (KILOTON)

### 11.7 PIPE & TANK

11.7.1 INCREASE IN DEMAND FOR TYPE IV CYLINDERS DRIVING THE CFRP

## MARKET

TABLE 57 CFRP MARKET SIZE IN PIPES & TANKS, BY REGION, 2018–2025 (USD MILLION)

TABLE 58 CFRP MARKET SIZE IN PIPES & TANKS, BY REGION, 2018–2025 (KILOTON)

TABLE 59 CNG, RNG, HYDROGEN TANK PRODUCED IN 2019

### 11.8 MARINE

TABLE 60 CFRP MARKET SIZE IN MARINE, BY REGION, 2015–2022 (USD MILLION)

TABLE 61 CFRP MARKET SIZE IN MARINE, BY REGION, 2018–2025 (KILOTON)

### 11.9 ELECTRICAL & ELECTRONICS

#### 11.9.1 APAC LEADS DEMAND IN ELECTRICAL & ELECTRONICS SEGMENT

TABLE 62 CFRP MARKET SIZE IN ELECTRICAL & ELECTRONICS, BY REGION, 2018–2025 (USD MILLION)

TABLE 63 CFRP MARKET SIZE IN ELECTRICAL & ELECTRONICS, BY REGION, 2018-2025 (KILOTON)

### 11.10 MEDICAL

11.10.1 COVID-19 PANDEMIC HAS INCREASED DEMAND FOR CFRP MATERIALS IN MEDICAL INDUSTRY

TABLE 64 CFRP MARKET SIZE IN MEDICAL, BY REGION, 2018–2025 (USD MILLION)

TABLE 65 CFRP MARKET SIZE IN MEDICAL, BY REGION, 2018–2025 (KILOTON)

### 11.11 OTHER END-USE INDUSTRIES

TABLE 66 CFRP MARKET SIZE IN OTHER END-USE INDUSTRIES, BY REGION, 2018–2025 (USD MILLION)

TABLE 67 CFRP MARKET SIZE IN OTHER END-USE INDUSTRIES, BY REGION, 2018–2025 (KILOTON)

## 12 CFRP MARKET, BY REGION

### 12.1 INTRODUCTION

FIGURE 36 TAIWAN PROJECTED TO REGISTER HIGHEST GROWTH IN CFRP MARKET, 2020–2025, IN TERMS OF VALUE

TABLE 68 CFRP MARKET SIZE, BY REGION, 2018–2025 (USD MILLION)

TABLE 69 CFRP MARKET SIZE, BY REGION, 2018–2025 (KILOTON)

### 12.2 NORTH AMERICA

FIGURE 37 NORTH AMERICA CFRP MARKET SNAPSHOT: US IS FASTEST-GROWING MARKET

TABLE 70 NORTH AMERICA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (USD MILLION)



TABLE 71 NORTH AMERICA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (KILOTON)

TABLE 72 NORTH AMERICA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 73 NORTH AMERICA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

TABLE 74 NORTH AMERICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 75 NORTH AMERICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

TABLE 76 NORTH AMERICA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (USD MILLION)

TABLE 77 NORTH AMERICA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (KILOTON)

#### 12.2.1 CANADA

12.2.1.1 Canada has fifth-largest aerospace industry

TABLE 78 CANADA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 79 CANADA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.2.2 US

12.2.2.1 US is largest consumer of CFRP materials in North America

TABLE 80 US: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 81 US: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3 EUROPE

FIGURE 38 EUROPE CFRP MARKET SNAPSHOT: GERMANY IS FASTEST-GROWING MARKET

TABLE 82 EUROPE: CFRP MARKET SIZE, BY RESIN, 2018–2025 (USD MILLION)

TABLE 83 EUROPE: CFRP MARKET SIZE, BY RESIN, 2018–2025 (KILOTON)

TABLE 84 EUROPE: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 85 EUROPE: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

TABLE 86 EUROPE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 87 EUROPE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

TABLE 88 EUROPE: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (USD MILLION)

TABLE 89 EUROPE: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (KILOTON)

#### 12.3.1 GERMANY

12.3.1.1 Germany leads the CFRP demand in Europe

TABLE 90 GERMANY: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 91 GERMANY: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3.2 FRANCE

12.3.2.1 France has largest aerospace & defense industry in Europe

TABLE 92 FRANCE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 93 FRANCE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3.3 UK

12.3.3.1 Automotive & wind energy drives the CFRP market

TABLE 94 UK: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 95 UK: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3.4 SPAIN

12.3.4.1 Aerospace & defense industry holds largest share of CFRP market in Spain

TABLE 96 SPAIN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 97 SPAIN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3.5 ITALY

12.3.5.1 Pipe & tank segment is fastest-growing consumer of CFRP in Italy

TABLE 98 ITALY: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 99 ITALY: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

#### 12.3.6 RUSSIA

12.3.6.1 Defense sector drives CFRP market in Russia

TABLE 100 RUSSIA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 101 RUSSIA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

## 12.4 APAC

FIGURE 39 CHINA IS LARGEST MARKET OF CFRP IN APAC, 2020–2025

TABLE 102 APAC: CFRP MARKET SIZE, BY RESIN, 2018–2025 (USD MILLION)

TABLE 103 APAC: CFRP MARKET SIZE, BY RESIN, 2018–2025 (KILOTON)

TABLE 104 APAC: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 105 APAC: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

TABLE 106 APAC: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 107 APAC: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

TABLE 108 APAC: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (USD MILLION)

TABLE 109 APAC: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (KILOTON)

### 12.4.1 CHINA

12.4.1.1 China is the largest CFRP market in APAC

TABLE 110 CHINA: NEW WIND ENERGY INSTALLATIONS, 2010–2019 (MW)

TABLE 111 CHINA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 112 CHINA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

### 12.4.2 JAPAN

12.4.2.1 Japan is largest exporter of carbon fiber

TABLE 113 JAPAN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 114 JAPAN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

### 12.4.3 SOUTH KOREA

12.4.3.1 Hyosung is major carbon fiber manufacturers in South Korea

TABLE 115 SOUTH KOREA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 116 SOUTH KOREA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

### 12.4.4 TAIWAN

12.4.4.1 Taiwan is largest CFRP bicycle manufacturer

TABLE 117 TAIWAN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 118 TAIWAN: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

## 12.5 LATIN AMERICA

TABLE 119 LATIN AMERICA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (USD MILLION)

TABLE 120 LATIN AMERICA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (KILOTON)

TABLE 121 LATIN AMERICA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 122 LATIN AMERICA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

TABLE 123 LATIN AMERICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 124 LATIN AMERICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

TABLE 125 LATIN AMERICA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (USD MILLION)

TABLE 126 LATIN AMERICA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (KILOTON)

### 12.5.1 BRAZIL

#### 12.5.1.1 Growing aerospace industry fueling CFRP market

TABLE 127 BRAZIL: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 128 BRAZIL: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

### 12.5.2 MEXICO

#### 12.5.2.1 Automotive and wind energy are prominent consumers of CFRP in Mexico

TABLE 129 MEXICO: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 130 MEXICO: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

## 12.6 MEA (MIDDLE EAST & AFRICA)

TABLE 131 MEA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (USD MILLION)

TABLE 132 MEA: CFRP MARKET SIZE, BY RESIN, 2018–2025 (KILOTON)

TABLE 133 MEA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (USD MILLION)

TABLE 134 MEA: CFRP MARKET SIZE, BY MANUFACTURING PROCESS, 2018–2025 (KILOTON)

TABLE 135 MEA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 136 MEA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025

(KILOTON)

TABLE 137 MEA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (USD MILLION)

TABLE 138 MEA: CFRP MARKET SIZE, BY COUNTRY, 2018–2025 (KILOTON)

12.6.1 UAE

12.6.1.1 Automotive and aerospace & defense industries lead the demand for CFRP

TABLE 139 UAE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 140 UAE: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

12.6.2 SAUDI ARABIA

12.6.2.1 Pipe & tank is promising end user for CFRP materials

TABLE 141 SAUDI ARABIA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 142 SAUDI ARABIA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

12.6.3 SOUTH AFRICA

12.6.3.1 South Africa is the largest market for CFRP in Africa

TABLE 143 SOUTH AFRICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (USD MILLION)

TABLE 144 SOUTH AFRICA: CFRP MARKET SIZE, BY END-USE INDUSTRY, 2018–2025 (KILOTON)

## **13 COMPETITIVE LANDSCAPE**

13.1 INTRODUCTION

FIGURE 40 EXPANSION AND ACQUISITION ARE KEY GROWTH STRATEGIES ADOPTED BETWEEN 2016 AND 2020

13.2 MARKET SHARE ANALYSIS

FIGURE 41 TORAY INDUSTRIES LEAD THE CFRP MARKET IN 2019

13.3 MARKET EVALUATION FRAMEWORK

13.3.1 EXPANSION

TABLE 145 EXPANSION, 2016-2020

13.3.2 AGREEMENT

TABLE 146 AGREEMENT, 2016-2020

13.3.3 ACQUISITION

TABLE 147 ACQUISITION, 2016-2020

13.3.4 PRODUCT LAUNCH/TECHNOLOGY LAUNCH

TABLE 148 PRODUCT LAUNCH/TECHNOLOGY LAUNCH, 2016-2020

13.3.5 PARTNERSHIP

TABLE 149 PARTNERSHIP, 2016-2020

13.3.6 JOINT VENTURE

TABLE 150 JOINT VENTURE, 2016-2020

13.3.7 COLLABORATION

TABLE 151 COLLABORATION, 2016-2020

13.4 REVENUE ANALYSIS OF TOP MARKET PLAYERS, 2019

TABLE 152 REVENUE ANALYSIS OF TOP MARKET PLAYERS, 2019

13.5 COMPANY EVALUATION MATRIX

13.5.1 STAR

13.5.2 PERVASIVE

13.5.3 PARTICIPANT

13.5.4 EMERGING LEADERS

FIGURE 42 CF & CFRP MARKET: COMPETITIVE LEADERSHIP MAPPING

13.6 STRENGTH OF PRODUCT PORTFOLIO

FIGURE 43 PRODUCT PORTFOLIO ANALYSIS OF TOP PLAYERS IN CF & CFRP MARKET

13.7 BUSINESS STRATEGY EXCELLENCE

FIGURE 44 BUSINESS STRATEGY EXCELLENCE OF TOP PLAYERS IN CF & CFRP MARKET

## **14 COMPANY PROFILES**

(Business Overview, Products Offered, Recent Developments, SWOT Analysis, MnM View)\*

14.1 TORAY INDUSTRIES INC.

FIGURE 45 TORAY INDUSTRIES, INC.: COMPANY SNAPSHOT

FIGURE 46 TORAY INDUSTRIES, INC.: SWOT ANALYSIS

14.2 TEIJIN LIMITED

FIGURE 47 TEIJIN LIMITED: COMPANY SNAPSHOT

FIGURE 48 TEIJIN LIMITED: SWOT ANALYSIS

14.3 MITSUBISHI CHEMICAL HOLDINGS CORPORATION

FIGURE 49 MITSUBISHI CHEMICALS HOLDINGS CORPORATION: COMPANY SNAPSHOT

FIGURE 50 MITSUBISHI CHEMICAL HOLDING CORPORATION: SWOT ANALYSIS

14.4 HEXCEL CORPORATION

FIGURE 51 HEXCEL CORPORATION: COMPANY SNAPSHOT

FIGURE 52 HEXCEL CORPORATION: SWOT ANALYSIS

14.5 SOLVAY GROUP

FIGURE 53 SOLVAY GROUP: COMPANY SNAPSHOT

FIGURE 54 SOLVAY: SWOT ANALYSIS

14.6 SGL GROUP

FIGURE 55 SGL GROUP: COMPANY SNAPSHOT

14.7 FORMOSA PLASTICS CORPORATION

14.8 HYOSUNG

FIGURE 56 HYOSUNG: COMPANY SNAPSHOT

14.9 ZHONGFU SHENYING CARBON FIBER CO., LTD.

14.10 KUREHA CORPORATION

FIGURE 57 KUREHA CORPORATION: COMPANY SNAPSHOT

14.11 DOWAKSA

14.12 TAEKWANG INDUSTRIAL CO. LTD.

14.13 JIANGSU HENGSHEN CO., LTD.

14.14 ELG CARBON FIBRE LTD.

14.15 NIPPON GRAPHITE FIBER CORPORATION

FIGURE 58 NIPPON GRAPHITE FIBER CORPORATION: COMPANY SNAPSHOT

14.16 PLASAN CARBON COMPOSITES

14.17 KEMROCK INDUSTRIES AND EXPORTS LTD.

14.18 HINDOOSTAN COMPOSITE SOLUTIONS

14.19 CROSBY COMPOSITES

14.20 SIGMATEX LIMITED

14.21 ZHONGAO CARBON

14.22 AERON COMPOSITE PVT. LTD.

14.23 WEIHAI TUOZHAN FIBERS CO. LTD.

14.24 CFK VALLEY STADE RECYCLING GMBH & CO. KG

14.25 ALABUGA FIBER, LLC

\*Details on Business Overview, Products Offered, Recent Developments, SWOT Analysis, MnM View might not be captured in case of unlisted companies.

## **15 APPENDIX**

15.1 DISCUSSION GUIDE

15.2 KNOWLEDGE STORE: MARKETSSANDMARKETS' SUBSCRIPTION PORTAL

15.3 AVAILABLE CUSTOMIZATIONS

15.4 RELATED REPORTS

15.5 AUTHOR DETAILS



## I would like to order

Product name: CF & CFRP Market by Source (Virgin, Recycled), Precursor (PAN, Pitch, Rayon), Resin (Thermosetting, Thermoplastic), Manufacturing Process, End-use Industry, and Region - Global Forecast to 2025

Product link: <https://marketpublishers.com/r/C403CFF7BABEN.html>

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

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/C403CFF7BABEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:  
Last name:  
Email:  
Company:  
Address:  
City:  
Zip code:  
Country:  
Tel:  
Fax:  
Your message:

**\*\*All fields are required**

Customer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below

and fax the completed form to +44 20 7900 3970