

The Global Market for Composites: Resins, Fillers, Reinforcements, Natural Fibers and Nanocomposites

Market Research Report | 2024-12-27 | 281 pages | BCC Research

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Report description:

Description

Report Scope

The scope of this report is extensive, as it covers a variety of composites that are used globally. The market for composites is analyzed by dividing it based on five major types and subtypes. BCC Research analyzed essential categories and regions to determine the present and future composites market status. The report also discusses market strategies, ESG development, emerging trends, regulatory landscape, key players, and market driving forces. The base year for the market study is 2023, and the estimates and forecasts are for 2024 through 2029. Market estimates are in U.S. dollars (millions). The report concentrates on composite products and technologies currently in commercial use; while promising, other products that are not likely to make out of the laboratory are not covered in scope. Moreover, the market size includes the revenue that composite-producing companies generate by incorporating industrial-scale technologies.

The global composites market is segmented into:

- Reinforcement Materials - By Type: fibrous, nonfibrous; By Application: aerospace and defense, automotive, wind energy, construction, consumer goods, marine, plastics, energy, rubber, paint and coatings, electrical and electronics, ceramics, sporting goods, pipes and tanks, medical and healthcare, and others; By Region: North America, Europe, Asia-Pacific, South America, and Rest of the World; By Fibrous Type of Reinforcement: glass fiber, ceramic fiber, aramid fiber, carbon fiber, boron fiber, epoxy/vinyl ester, and others (basalt fiber, quartz fibers, fiber hybrids; By Nonfibrous Type of Reinforcement: silicas, talcs, mica, wollastonite.
- Resins - By Type: thermosets, thermoplastics; By Application: pipes and tanks, construction, marine, electrical and electronics, aerospace and defense, automotive, wind energy, and others; By Region: North America, Europe, Asia-Pacific, South America, and Rest of the World.
- Fillers - By Type: calcium carbonate, ATH (alumina trihydrate) and others {calcium sulphate, magnesium hydroxide and

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synthetic silicas); By Application: automotive, pipes and tanks, consumer goods, marine, construction, electrical and electronics, and others; By Region: North America, Europe, Asia-Pacific, South America, and Rest of the World.

- Nanocomposites - By Type: nanoclays, carbon nanotubes, nanofibers, metal oxides, graphene, and others (green polymer nanocomposites, hybrid nanocomposites, silicon dioxide nanoparticles); By Application: automotive, packaging, electrical and electronics, medical and healthcare, aerospace and defense, energy, paint and coatings, adhesives and sealants, sporting goods, textiles, construction, chemicals, filtration, photovoltaics, and others; By Region: North America, Europe, Asia-Pacific, South America, and Rest of the World.

- Natural Fibers - By Type: wood fiber, hemp, flax, others (kenaf, rice husk fiber, abaca fiber); By Application: construction, automotive, consumer goods, others; By Region: North America, Europe, Asia-Pacific, South America, and Rest of the World.

Report Includes

- 108 data tables and 87 additional tables

- An overview of the global market for composites

- Analyses of global market trends, with market revenue data from 2023, estimates for 2024, and projected CAGRs through 2029

- Estimate of the current market size and revenue prospects, along with a market share analysis by type (and subtype), application and region/country

- Discussion of the market dynamics, technological advances, regulations, and the macroeconomic factors influencing the industry

- A Porter's Five Forces model, and global supply chain and SWOT analyses of the composites market

- Overview of sustainability trends and ESG developments, with emphasis on consumer attitudes, ESG score analysis, and the ESG practices of leading companies

- An update on recent patents

- Analysis of the industry structure, including company market shares, strategic alliances, M&A activity and a venture funding outlook

- Profiles of leading players, including Toray Industries Inc., Owens Corning, Hexcel Corp., SGL Carbon SE, and Mitsubishi Chemical Group Corp.

Executive Summary

Summary:

Composites are composed of two or more separate materials with different physical and chemical properties. They are combined to form a more functional material with qualities superior to its constituent elements. The main benefit of composites over other engineering materials, including metals, is their strength-to-weight ratio. Polymer matrix composites, nanocomposites, natural fiber, and ceramic composites are a few examples. Composites are sought-after materials crucial in delivering the net zero carbon emissions targets by 2050. They enable the light-weighting of vehicles to reduce CO2 emissions. The expanding hydrogen market is also anticipated to increase demand for carbon fiber polymer composite supplies significantly. Moreover, their resilience prolongs the infra-structure's lifespan.

Fiber reinforced polymers (FRPs) are composite materials of a thermoset or thermoplastic polymer reinforced with fiber, usually glass or carbon, embedded in a resin matrix. Thermoplastic composites are gaining high traction in the composites industry due to their high degree of impact strength; rigidity and resistance to chemicals, heat and humidity; and design freedom in demanding applications.

Thermoplastic composites are innately suited to automated production, and large-scale industries will continue to require automation. Emerging applications such as electronics, wind energy and civil infrastructure harness the superior properties of composites to lower service-life maintenance costs.

Wind turbines are one of the steadily growing industrial applications of reinforced carbon fiber-based composites. The cost of wind

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turbine-generated energy is cost-competitive to that of traditional fossil fuels. Glass-fiber and carbon fiber-reinforced polymers are the most popular composites for wind turbine rotors; however, hybrid composite fibers are also gaining popularity. A significant trend in the carbon fiber industry is the growing traction for recycled carbon fiber. The American Composites Manufacturers Association (ACMA) recently awarded researchers at the Department of Energy's Oak Ridge National Laboratory for their innovation in green composites. They designed a fully recyclable turbine blade tip composed of carbon fiber and conductive coating. According to Zoltek Corp., it is estimated that more than 30% of carbon fiber produced is waste during its life cycle. Therefore, several plastic recycling companies are taking initiatives to increase the production of recycled carbon and reduce environmental pollution.

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Company Profiles

ARKEMA

CHINA JUSHI CO. LTD.

DUPONT

GURIT SERVICES AG

HEXCEL CORP.

HEXION INC.

HUNTSMAN INTERNATIONAL LLC

IDI COMPOSITES INTERNATIONAL

INEOS

KUREHA CORP.

LG CHEM

LYONDELLBASELL INDUSTRIES HOLDINGS B.V.

mitsubishi chemical group corp.

NIPPON ELECTRIC GLASS CO. LTD.

NORSKE SKOG ASA

OWENS CORNING

RTP COMPANY

SABIC

SAINT-GOBAIN

SGL CARBON

SYENSQO

TECNARO GMBH

TEIJIN LTD.

TORAY INDUSTRIES INC.

UFP INDUSTRIES INC.

UPM

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