

Global Composites Market: Analysis By Resin Type (Thermoset & Thermoplastic), By Fiber Type (Glass Fiber, Carbon Fiber, Natural Fiber & Others), By End User (Automotive & Transportation, Electrical & Electronics, Construction & Infrastructure, Wind Energy, Pipes & Tanks, Marine, & Other), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028

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Abstracts

A composite material is made up of two components that have distinct physical and chemical properties. When they are mixed, they form a material that is specialized to perform a specific function, such as becoming stronger, lighter, or electrically resistant. They can also help to increase strength and stiffness. They are preferred over traditional materials because they increase the qualities of their basic materials and are applicable in many situations. The global composites market was valued at US\$102.75 billion in 2022 and is expected to be worth US\$148.08 billion in 2028.

The market value is expected to grow at a CAGR of 6.28% during the forecast period of 2023-2028. Composites market is expected to continue to grow as industries look for materials that offer high strength, durability, and lightweight properties. Furthermore, the factors such as growing demand for carbon fiber composites, development of new resin systems and advancements in development technology are expected to drive the market growth in the coming years.

Market Segmentation Analysis:

By Resin Type: The report provides the bifurcation of the market into two segments based on the resin type: Thermoset Composites, and Thermoplastic Composites. In 2022, the thermoset composites segment held the major share in the market. Thermoset composites are the polymers that are made with thermoset matrices having great strength and low impact-toughness making. These are based on glass, carbon and aramid fibers. The thermoset composites can be remolded without degradation on heating and on cooling they solidify into a finished shape. There is a substantial rise in the demand for thermoset composites by the various end user industries owing to its beneficial properties such as strength, rigidity and high temperature resistance. Due to the rapid growth and expansion of aerospace industry, the demand for thermoset composites has multiplied over the years.

By Fiber Type: The report further provides the segmentation based on the fiber type: Glass Fiber Composites, Carbon Fiber Composites, Natural Fiber Composites and Other Fiber Composites. Glass fiber emerged as a prominent segment, accounting for a major share in the global market. This phenomenal rise can be due to its high demand in the building, electronics and electrical, wind energy, and transportation sectors. It has enhanced qualities such as lightweight, high durability, high strength, and weather resistance. Such exceptional attributes are driving the segment's demand in a wide range of applications.

By End User: The outlook of the global composites market seems eye-catching with alluring prospects in numerous end-use sectors. The composites market is further bifurcated based on the end user: Automotive & Transportation, Electrical & Electronics, Construction & Infrastructure, Wind Energy, Pipes & Tanks, Marine, and Others. In 2022, the automotive and transportation segment dominated the market. Composites are used in automobiles, trucks, trailers, buses, railways, subways, and motorcycles. These industries use composites to replace metal in the manufacture of strong and lightweight components. The material possesses the stiffness and strength of metals but is lighter, allowing for the production of lightweight pieces.

By Region: The report provides insight into the composites market based on the geographical operations, namely Asia Pacific, Europe, North America and ROW. The Asia Pacific region dominated the composites market and is expected to expand rapidly during the forecast period. Due to the presence of important manufacturers in significant economies such as China, India, and Japan, the area is one of the most lucrative destinations for automotive, construction, aerospace, and electronics manufacturers. Considerable investment in the construction sector is expected to augment the demand for composites in the region which will drive the regional market growth. The presence

of key market players in the region is again contributing to the growth of the composites market in Asia-Pacific.

Europe is a significant market for composites due to the increasing demand for electric vehicles and the presence of stringent emission regulations. The growing use of composites in the construction sector, as a result of rapid urbanization and rising living standards, is driving the composites market in Europe. Meanwhile, rising thermoplastics production in the region in response to rising demand in the electronics industry is expected to support market growth.

Market Dynamics:

Growth Drivers: One of the most important factors impacting the global composites market is the increasing demand for EVs. Composites are materials made from two or more constituent materials with different physical or chemical properties. They offer several advantages over traditional materials such as metals, including high strength-to-weight ratios, corrosion resistance, and design flexibility. These properties make composites ideal for use in the automotive industry, especially in the production of EVs. One of the key advantages of composites is their ability to reduce the weight of vehicles without compromising on strength or safety. This is particularly important for EVs, as the batteries that power them are heavy and can add significant weight to the vehicle. Furthermore, the market has been growing over the past few years, due to factors such as growing construction sector, increasing demand for renewable energy, use of 3D printing technology, increasing demand for consumer goods and focus on lightweighting.

Challenges: However, the market has been confronted with some challenges specifically, issues related to recycling, high processing & manufacturing costs, etc. Composites are increasingly being used in aerospace, transportation, and other sectors such as construction and electronics. However, the high material and manufacturing expenses limit their use. To reduce the cost of composite products, it is essential to use tools to correctly determine costs during the early design stages. Composites manufacturing is a capital-intensive procedure that necessitates significant investment. Because composites take a long curing period, the molding process is slow. Furthermore, raw ingredients such as carbon fibers and thermoplastic resins are expensive. As a result, despite its numerous advantages over traditional materials such as steel and aluminum, the use of composites remains low. The high investment required for composite production limits market development.

Trends: The market is projected to grow at a fast pace during the forecast period, due to increasing demand from the aerospace & aviation industry, growing demand for ceramic matrix composites, sustainable use of composites for boatbuilding and marine structures and growing concept of automation. Aerospace has always been a technologically advanced business. Aerospace engineering has been a driving force behind the creation of advanced engineering materials. With the creation of space transport vehicles and the next wave of supersonic aircraft, the industry continues to push innovation to new heights. Composite materials have a wide range of proven uses in the aircraft and aerospace industries. The use of advanced composite materials in the aerospace sector is steadily increasing due to several advantages of composites over metals, such as lightweight, high strength, corrosion resistance, superior fatigue and fracture properties, and multifunctional performances such as SHM and self-assembly.

Impact Analysis of COVID-19 and Way Forward:

The COVID-19 pandemic has had a significant impact on the composites market. The impact has been seen in various areas of the composites market, including supply chain disruptions, demand fluctuations, production slowdowns, and changes in consumer behavior. The pandemic has disrupted supply chains due to lockdowns, travel restrictions, and labor shortages, leading to delays in the delivery of raw materials and components, and increasing transportation costs. This has resulted in challenges for composites manufacturers in sourcing materials and components, leading to production delays and increased costs. Moreover, several end-use sectors, such as aerospace, automotive, and construction, which are major consumers of composites, have experienced reduced demand due to economic downturns, travel restrictions, and decreased consumer spending.

The growing focus on lightweight, high-strength materials for various applications and the increasing need for sustainable solutions are expected to drive the demand for composites in the post-COVID-19 era. The composites manufacturing process, which involves complex fabrication techniques, could also witness increased automation and digitalization in the post-COVID-19 era. Technologies such as robotics, 3D printing, and virtual simulations could be utilized to streamline composites production, reduce labor costs, and improve product quality.

Competitive Landscape:

Global composites market is a rapidly evolving and highly fragmented market. The

global composites market is characterized by the presence of several companies, with established players driving industry trends. The majority of these companies focus on forward integration, selling their products directly to end-users in various business verticals. Some of these businesses also rely on an established distribution and sales network to readily interact with customers across geographies. The competitive battle among composites makers is fierce, as the industry is characterized by the existence of a significant number of global and regional companies.

The key players in the global composites market are:

Celanese Corporation

DuPont de Nemours, Inc.

Owens Corning

Teijin Ltd.

Toray Industries, Inc.

Huntsman Corporation

Hexcel Corporation

Mitsubishi Chemical Holdings Corporation

Solvay S.A.

China Jushi Co., Ltd.

Kineco Limited

Shanghai Huayuan New Composite Materials Co. Ltd.

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