

Global Graphene Composites Market - Forecasts from 2021 to 2026

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Abstracts

The global graphene composites market is expected to grow at a compound annual growth rate of 26.08% over the forecast period. The major advantage of graphene composites is that they are highly chemical resistive, lightweight, have high mechanical stability and thermal conductivity. Manufacturers and producers find it easier to fabricate graphene composites materials, which makes the material highly attractive for industries like building and construction industries, wind turbine and automotive, aerospace industries.

Rising Demand for Consumer Electronics

There has been a surge in the demand for consumer electronics in the market, for decades. The consumer electronics market is being driven by the growth of smart materials in electronic products, the introduction of the Internet of Things, and Artificial Intelligence. According to the Government of India, Consumer electronics and appliances are expected to be at USD 21.18 billion, by the year 2025. According to the retailers association of India, sales of consumer electronic products surged by 2% in September 2020, and rose to 8%, in October 2020. The production of electronic hardware in the country rose from approx. USD 65.53 billion, in the financial year 2019, to approx. USD 73.78 billion, in the financial year 2020. The national policy of the government of India targets the production of one billion mobile by the year 2025. The graphene market will also be driven by the growth of Artificial Intelligence in consumer electronics. Companies have been investing significant capital to develop novel and innovative smart electronics solutions for their customers. The importance of material rose with the adoption of innovative and advanced technologies. In January 2021, Researchers at the University of Nottingham announced a novel way to 3D print complex and tiny electronic devices using a combination of a flexible 2D material and a

regular printing process. The researchers used graphene, in an ink-jetting process and operation to build up electronic devices, which would be used to perform functions such as converting light into electricity. The unique achievement paved the way for end uses for inkjet-printed graphene polymer composites, with other related 2D materials. There have been other developments in the market, in recent times. In December 2020, China Carbon Graphite Group Inc. announced the launch of a research project, which would focus on applied graphene-based composites and materials, in capacitors, batteries, and other clean energy storage devices. The project would start in 2021, and the researchers would utilize their experience and knowledge in working with Graphite, Graphene, and Graphene Oxide, to establish the next generation of novel electronics products. The researchers would also aim to reduce the cost of graphene composites and their uses in achieving capacity, longevity, power density, and battery efficiency. Major smartphone manufacturers have also been making major developments in the market. Apple, one of the major players in the market, was granted a novel patent, which detailed and showed an audio device, that was using a diaphragm made from a graphene improved composite material. The company stated that its novel material would be used in a headphone device, microphone, or speaker. In October 2020, Multi Star International (MSI), a major player in the information technology market, announced that It had been utilizing graphene composites in the company's Graphics Processing Unit series called RTX 3000. The company had been shipping its novel graphic cards to international markets. MSI had been using graphene composite material in the backplate of the GPU.

Rising Demand In Automotive Industries

The market is expected to be driven by the growth and usage of graphene composites in the automotive industry. There have been major developments in the graphene composites market for automotive industries in recent years. In May 2018, a joint venture between Sipre, a Portuguese based Kayak Manufacturer, and Graphenest, one of the major players in the Graphene Composites market, produced one of the lightest surf ski, which was made from graphene and graphene composites materials. In January 2018, a UK Based researcher from the University of Sunderland, United Kingdom, produced a prototype of the world's initial graphene-based composite component for an automotive feature and an application. The researchers stated that the material had been extremely strong and light, and absorbed 40% maximum energy absorption, as compared to traditional and conventional composite materials. The market is also expected to be driven by the rising production and sales of electric cars, worldwide. According to the International Energy Agency, sales of electric cars rose to 2.1 million, worldwide, in the year 2019. The electric car sales registered an approx.

40% on year increase, between 2018 and 2019. China and Europe achieved novel records in the electric car market share in the year 2019. The electric car sales were also driven by the reduction in purchase subsidies in countries like The United States and China. The United States ran a federal tax credit program for major electric vehicle manufacturers such as Tesla and General Motors, which was a positive development for the market. The major advantage of graphene composite materials is that they are extremely light, which makes them a perfect material for its use in vehicle frameworks. Graphene Sheets are also widely used in fiber composites, such as nano-additives, to develop parts for vehicle frameworks. In November 2020, NanoXplore, one of the key players in the graphene market, announced that it had received a purchase order from Martinrea International, to supply and send graphene-enhanced materials for brake and fuel lines, for different passenger vehicles, which were manufactured by Original Equipment Manufacturers, a North American Automotive Company. There have been other developments in the market in recent times. In August 2020, G6 Materials, a key player in the market, announced the finalization of an R&D project to develop and produce graphene-based composites materials for marine and sea vessel applications and end uses, with a private Singapore-based company. The company had been expecting to receive a payment of around USD 117,500.

Rising Demand In Aerospace and Aircraft Industry

The market is expected to be driven by the growing production and demand in the aircraft and aerospace industry. Boeing, one of the major aircraft manufacturers, announced that it had delivered 380 aircraft in the year 2019. Meanwhile, Airbus announced that it had achieved its annual record by delivering over 863 jets in the year 2019. Graphene composites are gaining widespread attraction and demand in the aircraft industry. The material's excellent mechanical strength, high flexibility, and aspect ratio make it a perfect component for aircraft production. The fiber, graphene, and polymer matrix work together to provide mechanical stress, which results in enhanced strength and other advantageous properties. Meanwhile, the aerospace industry had been showing widespread demand for graphene composites because of their high strength and lightweight properties. In December 2020, Orbex, a United Kingdom low cost, private orbital launch services firm, announced that it had secured USD 24 million in a funding round led by Octopus Ventures and BGF, both London based company. The investment was secured for the development of the company's graphene-based rocket. The vehicle would use graphene improved carbon fiber composites for tanks and main structures.

Segmentation:

By Product Type

Polymer-based Graphene Composites

Metal-based Graphene Composites

Ceramic-based Graphene Composites

Others

By End-User

Aerospace

Buildings and Construction

Electronics

Energy Storage and Generation

Automotive

Others

By Geography

North America

USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

UK

Germany

France

Italy

Spain

Others

Middle East and Africa

Saudi Arabia

UAE

Others

Asia Pacific

Japan

China

India

Australia

Others

Note: The report will be delivered within 3 business days.

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9.9. BGT Materials Limited

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