

Global Nano-composites Market - Forecasts from 2021 to 2026

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Abstracts

The global nano-composites market is was evaluated at US\$1,916.727 million in 2020. The market is expected to be driven by the increasing use of nanocomposites industries such as packaging, aerospace, automotive, electronics, energy, and others. The major advantage of nanocomposites is that exhibit better mechanical properties, enhanced optical properties, high ductility without the loss of strength, and has a high surface & volume ratio.

Increasing Demand in Aircraft and Aerospace Industry

The market is expected to be driven by the use of nanocomposites in aircraft manufacturing and construction. The advantage of nanocomposites is in their nature as they combine both the optimization of existing materials and the creation of novel materials. The increasing air passenger traffic is playing a major role in the surging number in the production of aircraft, worldwide. According to the World Bank, the number of air passenger traffic surged from 310 million in the year 1970 to 4.3 billion in the year 2019. Worldwide. In East Asia and the Pacific, the air passenger traffic was at 1.4 billion in the year 2019. In Europe and Central Asia, the air passenger traffic was at 1.13 billion in the year 2019. Due to the rise in air passenger traffic, manufacturers and major players have increased the production of capacity of passenger aircraft and other types of aircraft, worldwide. 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.

There have been various developments in the nanocomposites market in recent years for its use in aircraft and aerospace applications. In January 2021, Alpine Advanced Materials announced that it had been allowed Industrial Microbiological Services, to add

antimicrobial coatings to the company's HX5 lightweight aviation-grade thermoplastic nanocomposite material. When the company's HX5 Composite material was coated with Signature Plating's SignaShield Antimicrobial Clearcoat, the surface virtually eliminated all major and harmful microbes. Major research and scientific institutions have been developing innovative and advanced nanocomposites materials for the market. In August 2020, Sheffield Hallam University, Composites Evolution and AIM Altitude had been backed by the Innovative UK, to develop nanocomposites materials for the market. The three of them, have been working in designing and incorporation a nanocomposite material for an airplane and aircraft's interior. The team had already developed a thermosetting resin system, which would use in the production of glass fibers, using a hot-melting process. The team stated that the material exhibited excellent fire performance and exceptional mechanical properties. This successful conclusion of the project had been a major development for the future of the aircraft industry. In May 2020, a team of scientists at the International Advanced Research Center for Powder Metallurgy and new materials announced the development of size-selective deposition of nanocomposite coatings, which would be used in the reduction of friction of the dynamic systems in aircraft. The nanocomposite coatings could also tolerate corrosion better than any other wear-resistant coatings available in the market.

Rising Demand in Food Packaging Industry

There has been a surge in the number of complaints regarding food quality standards, in recent years. Consumers have become more aware of the standardization of different food products. With the rise in disposable income and urbanization, worldwide, the demand for better food quality and packaging products has risen in recent years. Nanocomposites provide maintenance of food products. For Instance, in carbonated drinks, nanocomposites minimize the carbon dioxide by playing the role of a gas barrier. In 2018, Researchers at the Indian Institute of Technology, Roorkee announced the development of a novel eco-friendly nanocomposite material, which helped in combating antibiotic resistance more effectively. The novel compound had the potential to be used in food products as an emulsifying, thickening, and gelling agent. In September 2019, researchers at the Mohali based Centre of Innovative and Applied Bioprocessing announced the development of nanocomposite, lignin-based, which would be used as an additive in packaging materials.

Regional Analysis

Asia Pacific Region is expected to have a major market share in the coming years, owing to the presence of a large manufacturing sector for food packaging, automotive,

energy, and other applications. China is expected to have a major share in the market because of the large automotive industry and manufacturing sector. According to China's government data, the country produced approx. 26 million motor vehicles in the year 2019. Out of that 83% of China's production was towards the manufacturing of passenger cars. According to the data given by SAIC Motor Corporation Limited, the company sold 6.2 million vehicles in the year 2019. India is also expected to have a major share in the market because of the large consumer electronics industry and the automotive sector. According to the Indian Government, 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 country is also a major player in the automobile market, which is expected to drive the nanocomposites market growth in the coming years. The Ministry of Commerce data stated that Foreign Direct Investment in the country between the years 2000 and 2020, was around USD 24.53 billion. The country became the 4th Biggest auto market in the world, in the year 2019, with over 3.99 million units sold in the commercial and passenger vehicle categories. The data also stated that domestic production surged by 2.36% between the financial year 2016 to 2020. There were over 26.36 million vehicles manufactured and produced in the year 2020. The United States is also expected to have a major share in the market in the coming years, because of the rising demand and production of electric vehicles in the country. Tesla, one of the major American players in the EV market, announced that the company delivered 499,550 vehicles in the year 2020. The company produced 509,737 vehicles in the year 2020. Another major United States Company known as General Electric announced that it would spend USD 20 billion through 2025, on the development of the next-generation autonomous and EV vehicles. The novel vehicles need smart materials, which would provide a positive development of nanocomposites market. The United Kingdom will also have a major share in the market because of the rising investments in the development of novel nanocomposite materials. In October 2019, Colloid Group, a company based in the United Kingdom, announced that it would be investing and funding a joint research project with the Graphene Engineering Innovation Centre to develop nanocomposites, graphene, and other related 2D materials for several applications. The research was conducted at the University of Manchester.

Segmentation:

By Material Type

Graphene

Nanofiber

Metal Oxide

Carbon Nanotubes

Others

By End-User

Aerospace

Electronics and Semiconductor

Energy

Automotive

Packaging

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

Iran

Others

Asia Pacific

Japan

China

India

Australia

Others

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

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