

Graphene Composites Market Expected to Reach US\$ 925.5 Million by 2033

Elevated Demand for Graphene Composites in the Automotive Industry Driving Market Expansion

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/EINPresswire.com/ -- In 2022, the United States witnessed a market value of US\$ 4.3 million for graphene composites. The United States stands as the primary catalyst for market growth, attributed to its substantial defense expenditure, substantial investments in research and development, and a plethora of graphene composites suppliers.

Fact.MR projects a substantial upswing in the global [graphene composites market size](#), with estimates suggesting a surge from US\$ 32.9 million in 2023

to a remarkable US\$ 952.5 million by 2033, reflecting a notable compound annual growth rate (CAGR) of 40.3% during the decade. Graphene composites represent innovative materials that amalgamate graphene, a two-dimensional carbon structure renowned for its exceptional mechanical, electrical, and thermal properties, with various other materials. The purpose is to augment the performance characteristics of these materials. Graphene composites find application as coatings, elevating the durability, corrosion resistance, and friction properties across a diverse spectrum of materials, ranging from metals and ceramics to plastics and textiles.

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Key Takeaways from Market Study:



Graphene Composites Market

- China projects a growth rate of 43.2% and remains a prominent country for the graphene composites
- Metal based composites are projected to record over 25.7% growth rate during the forecast period
- Consumption of graphene composites in European countries is expected to expand over 31.8% during the forecast period
- The global graphene composites market is expected to propel at a CAGR of 40.3% by the end of the forecast period
- Consumption of polymer-based graphene composites is expected to propel at a CAGR of 28.6% by end of 2033

Competitive Landscape:

Manufacturers positioned in US and Europe are focusing on improving production efficiency and facilitating product marketing. Additionally, manufacturers are investing to develop an alternate source of graphene production that would help to reduce the reliance on natural resources. Also, increasing awareness of graphene composites benefits has gained the interest of new manufacturers to enter the market making it more competitive.

Fact.MR has provided detailed information about the price points of key manufacturers of graphene composites positioned across regions, sales growth, production capacity, and speculative technological expansion, in the recently published report.

Key Companies Profiled:

- Haydale Graphene Industries PLC
- Graphene Nanochem plc.
- Applied Graphene Materials plc.
- Directa Plus PLC Company
- Graphene Composites Limited GC
- Nano Graphene Inc.

Drivers Fuelling the Expansion of the Graphene Composites Market:

Surging Demand for Lightweight Materials Driving Market Expansion:

The increasing demand for lightweight materials in the aerospace and automotive sectors is propelling the adoption of graphene composites. This surge can be attributed to the exceptional

thermal and electrical conductivity, as well as the favorable stiffness and weight characteristics exhibited by graphene composites. These advanced materials, such as graphene and its composites, are gaining traction as they enable improved fuel efficiency without compromising performance or safety. When compared to conventional materials like steel and cast iron, lightweight options such as magnesium (Mg) alloys, high-strength steel, and graphene composites require less energy for acceleration. Innovations like graphene composites have significant potential to reduce vehicle weight by 10% to 15%, ultimately enhancing fuel efficiency by 6% to 10% and aligning with environmental regulations.

Investment in Research and Development as a Catalyst for Market Growth:

Research and development activities related to graphene are experiencing substantial growth in countries like China, the United States, and others. The upswing in R&D efforts is attributed to various factors, including favorable government policies and funding. Many nations are actively pursuing an innovation strategy to advance the production technology for graphene composites. Notably, China has emerged as a key player in the introduction and patenting of graphene and graphene-related products. The country has made significant investments in composite materials and graphene with the aim of enhancing the value of cutting-edge materials in the industrial sector.

Challenges of High Production Costs:

While graphene composites offer multifunctional properties and diverse applications across various industries, their high production costs present a hurdle to the global graphene composites market. The cost of manufacturing, graphene pricing, and product quality all impact the pricing of graphene composites. Since graphene is not a common material, its price varies depending on the grade and specific requirements for a given application.

The production of high-quality monolayer and few-layer graphene primarily employs the chemical vapor deposition (CVD) technique, which is challenging to scale up. Manufacturers of graphene composites encounter difficulties in producing significant quantities of graphene within short timeframes due to limitations in production processes. Additionally, the production of graphene composites necessitates expensive machinery and equipment, and it poses associated risks to human health and the environment, which further constrain large-scale production.

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Soft Magnetic Composites (SMCs) Market: The global soft magnetic composites (SMCs) market is valued at US\$ 4.5 billion in 2023 and is forecasted to reach US\$ 8.9 billion by 2033-end. The

market is predicted to expand at a CAGR of 7% from 2023 to 2033.

[Medical Composites Market](#): The global medical composites market is estimated to reach a valuation of US\$ 1.2 billion in 2023 and it is expected to grow at a CAGR of 9.0% to reach US\$ 2.8 billion by the end of 2033.

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