Hybrid Composites Market Size and Share Outlook - Forecast Trends and Growth Analysis Report (2025-2034)

Market Report | 2025-07-15 | 163 pages | EMR Inc.

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Report description:

The global hybrid composites market size reached a value of nearly USD 903.72 Million in 2024 and is projected to grow at a CAGR of 12.80% between 2025 and 2034, reaching around USD 3013.87 Million by 2034. Hybrid composites are gaining traction across several end-use industries due to their unique mechanical properties, which include high strength, low density, and high impact resistance. These composites, made from a combination of composite materials, fibers, and matrix, are widely used in automotive, aerospace, transportation, defense, and wind energy sectors. The market for hybrid composites is driven by their ability to offer enhanced performance in applications where durability and strength are crucial. As industries increasingly seek advanced solutions, hybrid composites are expected to play a key role in shaping the future of various sectors.

The hybrid composites market is experiencing significant growth, driven by the demand for lightweight materials in automotive and aerospace applications. Carbon/glass and carbon/aramid composites are increasingly used due to their superior properties. The market's growth is further supported by capacity expansions and the expanding regional market. Automotive and aerospace industries continue to drive the market, with ongoing developments expected to bolster market growth throughout the forecast period.

The hybrid composites market is seeing notable growth, driven by the demand for hybrid composite products in the automotive sector. Manufacturing of automotive and aircraft parts using hybrid composites offers benefits like reduced fuel consumption and lower CO2 emissions. Manufacturers are focused on reducing manufacturing cycle time while replacing metal components with advanced composites. Technological innovations are further boosting product demand, contributing to market growth and enhancing the efficiency of automotive and aircraft parts production. The study investigated MXene@ZIF-8 composites for water treatment, showing that MXOH@ZIF efficiently adsorbed pollutants like methyl orange and ciprofloxacin. Strong electrostatic and van der Waals interactions contributed to effective contaminant removal.

The global hybrid composites market is experiencing significant growth, driven by their exceptional mechanical properties,

including specific strength, stiffness, and corrosion resistance. Hybrid composites offer advantages like reduced weight, making them ideal for aerospace and marine industries. Cost reduction and the development of innovative technology are enhancing processing techniques, leading to better manufacturing technology and fabrication methods. As the demand for high-performance composites increases, advancements in processing and fabrication methods continue to propel market growth, offering enhanced materials with superior mechanical properties.

Fiber Type Insights

Carbon/glass hybrid composites offer a blend of strength, stiffness, and cost-efficiency. Carbon fibres provide high tensile strength and stiffness, while glass fibres enhance impact resistance and durability, making this hybrid ideal for automotive, aerospace, and marine applications. This combination results in reduced weight, increased fuel efficiency, and lower manufacturing costs, making carbon/glass composites a popular choice in the global hybrid composites market for performance-driven applications. In November 2024, Compositadour launched its Turbolab facility in France for aerospace propulsion systems R&D. The test bench focuses on technology transfer, including systems electrification, fuels, and materials like CMC and hybrid composites, supporting ecological transitions and regional resilience in aerospace innovation.

Aramid/carbon hybrid composites combine the exceptional strength and impact resistance of aramid fibres with the high stiffness and tensile strength of carbon fibres. This synergy results in lightweight materials that offer superior durability, excellent resistance to abrasion, and high impact performance. These composites are particularly beneficial in industries like aerospace, defence, and automotive, where both strength and weight reduction are crucial. The aramid fibres enhance toughness and resistance to damage, while carbon fibres contribute to high specific strength and stiffness. The combination improves overall performance and reduces production costs, driving the demand for aramid/carbon composites in the global hybrid composites market.

End-Use Insights

In the automotive and transportation sectors, hybrid composites provide a combination of lightweight properties, high strength, and durability. These materials reduce vehicle weight, enhancing fuel efficiency and performance while lowering CO_2 emissions. Hybrid composites are also resistant to corrosion, improving the longevity of components in harsh environments. Their ability to withstand high stress and impact makes them ideal for automotive parts like body panels, chassis, and transportation infrastructure.

Hybrid composites are increasingly utilised in aerospace and defense applications for their high strength-to-weight ratio and superior mechanical properties. These composites reduce the overall weight of aircraft, improving fuel efficiency and payload capacity. In defense, hybrid composites enhance durability and impact resistance, offering superior protection for military equipment. In December 2021, Rocket Lab introduced the Neutron, the world's first carbon fibre composite large launch vehicle, designed for satellite, deep space, and human space flights. It features reusable, heat-resistant carbon fibre composites for multiple missions.

In the wind energy sector, hybrid composites are pivotal for producing lightweight yet strong turbine blades, which are essential for optimising energy production. Their high strength, stiffness, and resistance to environmental degradation extend the lifespan of wind turbine components, reducing maintenance costs. Hybrid composites also help in increasing the efficiency of wind turbines by improving their performance under high stress and extreme weather conditions, contributing to more sustainable and cost-effective renewable energy solutions.

Resin Type Insights

Thermoset resins are widely used in hybrid composites due to their excellent mechanical properties and heat resistance. Once cured, thermoset resins form a rigid structure, making them ideal for high-strength applications.

These resins offer superior dimensional stability, making them suitable for industries like aerospace, automotive, and defence. Their ability to withstand high temperatures and resist degradation under extreme conditions enhances the durability and performance of composite materials, especially in demanding environments.

Thermoplastic resins are gaining popularity in the hybrid composites market for their flexibility and ease of processing. These resins can be reshaped when heated, offering significant advantages in manufacturing and repair processes.

Thermoplastics are increasingly used in the automotive and transportation sectors, where lightweight and recyclable materials are in demand. Their ability to be reprocessed makes them a more sustainable option compared to thermosets, and they offer reduced cycle times and lower overall manufacturing costs, driving their adoption in various applications.

Regional Insights

The Asia Pacific region is witnessing rapid growth in the global hybrid composites market, driven by increasing demand from automotive, aerospace, and wind energy industries. Countries like China, India, and Japan are investing heavily in infrastructure and manufacturing capabilities, propelling the adoption of advanced composite materials. In March 2025, Kolmar Korea developed the UV-DUO PLUS hybrid composite sunscreen technology, enhancing UV protection and long UVA blocking efficiency by 24.8%. This technology stabilises sunscreen ingredients, ensuring better dispersion and effectiveness, and has been patented in South Korea.

North America holds a significant share of the global hybrid composites market, with the United States and Canada leading the way. The aerospace and defence sectors are major drivers, as hybrid composites offer high strength and durability for advanced applications. Furthermore, the push for more fuel-efficient vehicles and sustainable energy solutions has increased the adoption of hybrid composites in the automotive and wind energy industries across the region.

Europe is a key market for hybrid composites, especially in industries such as aerospace, automotive, and wind energy. The region's emphasis on sustainability, innovation, and reducing carbon footprints supports the growth of hybrid composites. In March 2025, IMT Nord Europe launched the COMPOLIS initiative, focusing on advancing composite materials, addressing environmental challenges, and integrating digital solutions for lightweight structures, material functionalization, and infrastructure monitoring, promoting sustainable industrial applications.

In Latin America, the global hybrid composites market is expanding steadily, particularly in sectors such as automotive, aerospace, and renewable energy. Brazil, as a key manufacturing hub, is contributing to the market's growth, driven by the need for cost-effective, lightweight materials in these industries. The increasing focus on energy efficiency, alongside government initiatives to promote sustainable practices, is expected to drive further adoption of hybrid composites. However, the market faces challenges such as the need for more advanced manufacturing capabilities and infrastructure.

The Middle East and Africa (MEA) region is seeing gradual growth in the hybrid composites market, with the aerospace and automotive industries driving demand. In the UAE and Saudi Arabia, investments in advanced manufacturing technologies are supporting the development of hybrid composite materials. The region's focus on sustainability, coupled with increasing renewable energy projects, is pushing the adoption of hybrid composites. In March 2025, Saudi Arabia's General Authority of Civil Aviation presented over USD 100 billion in aviation investment opportunities at the World Economic Forum. This included airport expansions, new aircraft acquisitions, and advanced logistics hubs, aiming to establish Saudi Arabia as a global aviation hub.

Key Companies & Market Share Insights

The global hybrid composites market is highly competitive, with several key players driving innovation and market growth. These companies focus on enhancing product performance, reducing manufacturing costs, and expanding their presence in various industries such as aerospace, automotive, and wind energy. Leading companies are investing in advanced materials, new processing techniques, and sustainable manufacturing practices. Market share is largely influenced by the demand for lightweight, high-strength materials and the ability to meet the specific needs of end-use industries, positioning these companies for sustained growth in the hybrid composites sector.

Teijin Limited

Teijin Limited?is a Japanese ?technology driven firm that offers products and solutions for the chemical, pharmaceutical, and IT sectors. Some of the products offered by the company includes high-performance fibres including carbon fibres and composites, aramid, healthcare, films, resin and plastic processing, polyester fibres, goods converting, and IT products.

Gurit

Gurit?is one of the major suppliers of advanced composite materials for wind energy, marine, and many other industries around the world. The company was founded in 1835 and has developed expertise in the practical application of composites across different market sectors. The company's speciality lies in carbon fibre prepregs, structural core materials, composite materials, adhesives, wind energy, and fibre prepregs, among many other fields.

SGL Carbon SE

SGL Carbon SE?is a global innovator in the design and production of carbon-based products. The company was established in 1992 and currently, its headquarter is located in Wiesbaden, Germany.

? Royal DSM N.V.
? SGL Carbon SE
? Gurit
? Teijin Limited
? Exel Composites
? Innegra? Technologies
? Avient Corporation
? Quantum Composites
? Hexcel Corp.
? Solvay S.A.
? Others

Segments Covered in the Report

The EMR's report titled ?Hybrid Composites Market Report and Forecast 2025-2034? offers a detailed analysis of the market based on the following segments:

Fibre Type Outlook (Revenue, Million, 2025-2034)

? Carbon/Glass and Glass/Carbon

? Aramid/ Carbon
? HMPP/Carbon
? UHMWPE/Carbon
? Others

Resin Type Outlook (Revenue, Million, 2025-2034)

? Thermoset
? Thermoplastic

End-Use Outlook (Revenue, Million, 2025-2034)

? Automotive and Transportation
? Aerospace and Defence
? Wind Energy
? Sporting Goods
? Marine
? Others

Region Outlook (Revenue, Million, 2025-2034)

? North America
??? United States of America
??? Canada

? Europe
??? United Kingdom
??? Germany
??? France
??? Italy
??? Others

? Asia Pacific
??? China
??? Japan
??? India
??? ASEAN
??? Australia
??? Others

? Latin America
??? Brazil
??? Argentina
??? Mexico
??? Others

? Middle East and Africa

??? Saudi Arabia
??? United Arab Emirates
??? Nigeria
??? South Africa
??? Others

Table of Contents:

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