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Hybrid Composites Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Fiber Type (Carbon/Glass and Glass/Carbon Hybrid Composites, Aramid (Kevlar)/Carbon Hybrid Composites, Hmpp/Carbon Hybrid Composites, Uhmwpe/Carbon Hybrid Composites, Other Fiber Hybrid Composites), By Resin (Thermoset and Thermoplastic), By End-Use Industry (Aerospace & Defense, Wind Energy, Automotive & Transportation, Sporting Goods, Marine, Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Hybrid Composites market is projected to expand from USD 1.02 Billion in 2025 to USD 2.28 Billion by 2031, achieving a CAGR of 14.35%. These composites generally incorporate two or more distinct reinforcement fibers, such as carbon and glass, within a single matrix to achieve an optimal balance of mechanical strength and production costs. Market growth is primarily fueled by the aerospace and automotive sectors, which require lightweight materials that provide a superior strength-to-weight ratio while remaining more cost-efficient than pure carbon fiber alternatives. This drive for material efficiency is substantial within the broader industry, where the JEC Group reported that the total volume of the global composites market reached 13.5 million tonnes in 2024.

A major hurdle hindering market expansion is the complexity involved in recycling multi-material structures once they reach the end of their lifecycle. The combination of

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dissimilar fibers renders the separation and reclamation processes technically intricate and often economically unfeasible compared to mono-material composites. This challenge creates a significant barrier for manufacturers who are required to comply with increasingly stringent international environmental regulations concerning sustainability and waste management.

Market Driver

The escalating demand for lightweight materials in the automotive sector to satisfy emission standards serves as a primary catalyst for the Global Hybrid Composites market. Manufacturers are increasingly adopting hybrid structures to secure necessary weight reductions without facing the prohibitive costs associated with pure carbon fiber components. By strategically blending different reinforcement fibers, automakers can optimize the strength-to-weight ratio for structural parts, such as chassis frames and body panels, while adhering strictly to international environmental regulations. Recent industrial data supports the dominance of this application; CompositesWorld reported in March 2024, referencing the "JEC World 2024: Global composites market overview," that the transportation industry remains the leading application sector, accounting for 27% of the global composites volume.

Simultaneously, the rapid expansion of the wind energy sector, which demands high-stiffness turbine blades, further drives the adoption of hybrid materials. As manufacturers increase the size of onshore and offshore turbines to maximize energy capture, they require blades that maintain structural integrity under extreme loads?a requirement where traditional glass fiber often fails due to excessive weight. Hybrid composites enable the strategic placement of carbon fiber in load-bearing spars while using glass fiber in less critical areas, effectively balancing mechanical performance with economic feasibility. The scale of this demand is evidenced by installation rates; the Global Wind Energy Council's "Global Wind Report 2024" noted that the industry installed a record 117 GW of new capacity in 2023, contributing to a global composites market value estimated by the JEC Group at 105 billion USD in 2024.

Market Challenge

The difficulties associated with recycling multi-material structures impose a significant restraint on the commercial scalability of the Global Hybrid Composites market. Since hybrid composites utilize chemically and physically distinct fibers like glass and carbon within a single matrix, separating these materials for reclamation is technically arduous and cost-prohibitive. This complexity hinders the establishment of efficient circular

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economy loops, which are increasingly mandated by international environmental standards. Consequently, industries such as automotive and wind energy face heightened liability regarding the disposal of these non-biodegradable materials, causing potential adopters to hesitate in selecting hybrid solutions over fully recyclable alternatives.

This technical limitation directly hampers market growth by generating substantial volumes of end-of-life waste that manufacturers cannot easily mitigate. The scale of this waste management issue is particularly evident in the wind energy sector, a primary consumer of hybrid reinforced structures. According to WindEurope, the annual volume of decommissioned composite blade waste in Europe is projected to reach approximately 20,000 tonnes in 2025. Such a growing accumulation of unrecyclable material highlights the sustainability gap that currently restricts the broader adoption of hybrid composite technologies.

Market Trends

A growing preference for thermoplastic resins over thermosets is fundamentally reshaping the Global Hybrid Composites market as manufacturers prioritize recyclability and faster production cycles. Unlike traditional thermoset matrices, which are difficult to reprocess, thermoplastics allow for re-melting and reforming, thereby facilitating efficient circular economy loops and enabling rapid automated manufacturing techniques such as welding. This shift is particularly notable in the European sector, where stringent regional environmental regulations are driving the widespread adoption of these sustainable technologies to mitigate end-of-life disposal issues. The scale of this transition is highlighted by recent industrial figures; the European Composites Industry Association reported in February 2024 within the "European Market for Fiber-Reinforced Plastics / Composites 2023" that the production volume of thermoplastic composites in Europe reached 1,423 kilotonnes in 2023.

Additionally, the expansion of hybrid composite use in electric vehicle battery enclosures is emerging as a critical trend, driven by the need to balance structural protection with thermal management. Automakers are increasingly replacing heavy metal casings with hybrid structures that utilize glass and carbon fibers to ensure fire resistance during thermal runaway events while offsetting the substantial mass of lithium-ion battery packs. This application area offers a distinct competitive advantage over aluminum by providing superior insulation and weight reduction essential for extending vehicle range and meeting safety standards. The performance benefits driving this adoption are significant; in a January 2024 press release titled "Technology

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partnership with E-Works Mobility," SGL Carbon highlighted that their composite battery enclosures can achieve weight savings of up to 40% compared to equivalent aluminum or steel designs.

Key Market Players

Royal DSM N.V.

SGL Group

Gurit

Hexcel Corporation

Teijin Limited

Solvay

General Electric

Exel Composites

PlastiComp, Inc.

Innegra Technologies, LLC

Report Scope

In this report, the Global Hybrid Composites market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Hybrid Composites market, By Fiber Type

Carbon/Glass and Glass/Carbon Hybrid Composites

Aramid (Kevlar)/Carbon Hybrid Composites

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- Hmpp/Carbon Hybrid Composites
- Uhmwpe/Carbon Hybrid Composites
- Other Fiber Hybrid Composites

Hybrid Composites market, By Resin

- Thermoset and Thermoplastic

Hybrid Composites market, By End-Use Industry

- Aerospace & Defense
- Wind Energy
- Automotive & Transportation
- Sporting Goods
- Marine
- Others

Hybrid Composites market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom

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Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global

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Hybrid Composites market.

Available Customizations:

Global Hybrid Composites market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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