

# **Advanced Composites for Aerospace & Automotive Market Forecasts to 2034 – Global Analysis By Fiber Type (Carbon Fiber Composites, Glass Fiber Composites, Aramid Fiber Composites, Basalt Fiber Composites, and Natural Fiber Composites), Resin Type, Manufacturing Process, Product Form, Vehicle Type, End User and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Advanced Composites for Aerospace & Automotive Market is accounted for \$27.4 billion in 2026 and is expected to reach \$47.3 billion by 2034 growing at a CAGR of 7.1% during the forecast period. Advanced composites for aerospace and automotive applications are engineered materials formed by combining two or more constituent substances to achieve superior structural performance compared to individual components. Comprising fiber types such as carbon, glass, aramid, basalt, and natural fibers embedded within thermoset or thermoplastic resin matrices, these composites deliver exceptional strength-to-weight ratios, corrosion resistance, and design flexibility.

### **Market Dynamics:**

Driver:

Accelerating lightweighting mandates across commercial aviation and electric vehicles

Stringent fuel efficiency regulations in commercial aviation and rapidly tightening emission standards for passenger vehicles are compelling manufacturers to adopt advanced composite structures at scale. Airlines operating next-generation platforms

such as the Boeing 787 and Airbus A350 benefit from composite-intensive airframes that deliver measurable improvements in operating economics. In the automotive sector, battery electric vehicle manufacturers face particular pressure to offset the mass penalty of large battery packs through structural lightweighting. Advanced carbon fiber and glass fiber composites are increasingly specified for body-in-white structures and underbody components, making regulatory compliance a primary commercial driver.

#### Restraint:

Elevated material and processing costs relative to conventional metals

Despite their performance advantages, advanced composites face persistent adoption barriers arising from significantly higher raw material costs compared to aluminum and steel alternatives. Carbon fiber precursor production is energy-intensive, and fiber manufacturing remains concentrated among a small number of global suppliers, limiting competitive pricing pressure. Automated manufacturing equipment for composite layup and curing represents substantial capital investment for Tier 1 suppliers. Repair and inspection procedures for composite structures require specialized tooling and trained personnel, creating lifecycle cost complications that procurement teams must weigh against upfront lightweighting benefits when making material specification decisions.

#### Opportunity:

Thermoplastic composite development for high-volume automotive applications

The development of rapid-cycle thermoplastic composite processing technologies is creating a compelling opportunity to extend composite adoption into high-volume automotive manufacturing. Unlike thermoset systems, thermoplastics can be processed in cycle times compatible with automotive assembly line rates and offer recyclability advantages aligned with end-of-life vehicle regulations. Major chemical companies and Tier 1 automotive suppliers are investing jointly in compression molding and injection overmolding processes for structural thermoplastic composites. Commercial viability for mass-market vehicle segments is becoming achievable, opening an addressable market many times larger than current aerospace-focused composite volumes.

#### Threat:

Competition from advanced aluminum alloys and multi-material strategies

Advanced composite materials face increasing competition from high-strength aluminum alloy developments and innovative multi-material joining strategies that allow vehicle and aircraft manufacturers to achieve meaningful weight reduction at lower total system cost. Automotive OEMs are increasingly adopting selective material strategies that deploy composites only in areas where their performance premium is fully justified, rather than pursuing all-composite body architectures. Similarly, continued investment in aluminum forming and joining technology by established metal suppliers is narrowing the performance gap in certain structural applications, creating an increasingly competitive material substitution landscape.

#### Covid-19 Impact:

The COVID-19 pandemic severely impacted the advanced composites market through the near-collapse of commercial air travel demand, which triggered order cancellations and delivery deferrals across major aircraft programs. Composite material suppliers faced sharp revenue declines as aerospace production rates dropped to historic lows. However, the automotive recovery proved faster than anticipated, supported by pent-up consumer demand and accelerating EV adoption programs. Government-backed aviation sector rescue packages included conditions encouraging fleet renewal with fuel-efficient aircraft, creating medium-term pull-through demand for composite-intensive platforms as airlines modernize aging fleets.

The Carbon Fiber Composites segment is expected to be the largest during the forecast period

The Carbon Fiber Composites segment is expected to account for the largest market share during the forecast period. Carbon fiber composites are projected to hold the largest market share throughout the forecast period due to their unmatched specific stiffness and strength properties that are indispensable in primary structural aerospace applications. Boeing and Airbus continue to incorporate increasing percentages of carbon fiber reinforced polymer in new aircraft programs, while premium automotive manufacturers deploy carbon components in chassis, roofing, and body structure applications. Established supply chains for carbon fiber precursor production, advances in automated fiber placement technology, and growing qualification experience among aerospace manufacturers reinforce this segment's structural market leadership.

The Natural Fiber Composites segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Natural Fiber Composites segment is predicted to witness the highest growth rate. Natural fiber composites are forecast to record the highest growth rate during the forecast period, propelled by tightening sustainability regulations governing automotive material content and growing OEM commitments to reduce the carbon footprint of manufactured vehicles. Flax, hemp, and kenaf fiber composites are finding commercial application in interior door panels, trunk liners, and structural underbody components where their bio-based origin reduces lifecycle emissions. European regulatory frameworks mandating minimum recycled and bio-based material content in new vehicles are creating structural demand, while competitive pricing versus glass fiber alternatives improves total cost positioning.

### **Region with largest share:**

During the forecast period, the North America region is expected to hold the largest market share. North America is anticipated to maintain the largest market share throughout the forecast period, driven by substantial defense procurement budgets supporting composite-intensive military aircraft programs and strong commercial aviation manufacturing output from Boeing and its supplier base. The region's vibrant aerospace Tier 1 ecosystem and mature qualification processes create a self-reinforcing demand environment. Rapid growth in North American electric vehicle production, anchored by manufacturing expansions from domestic and foreign OEMs, is generating incremental demand for composite structural and battery enclosure components that further supports regional market leadership.

### **Region with highest CAGR:**

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Asia Pacific is projected to exhibit the highest growth rate over the forecast period, supported by domestic commercial aircraft program, expanding automotive manufacturing investment across India and ASEAN nations, and government-directed composite industry development initiatives. China's ambitions to develop a self-sufficient aerospace supply chain necessitate substantial domestic composite material production capacity. Meanwhile, Japanese and South Korean composite manufacturers are expanding their global market position through joint ventures and technology licensing arrangements. Growing regional EV production targets create structural demand for lightweight composite materials across battery, chassis, and body structure applications.

## Key players in the market

Some of the key players in the Advanced Composites for Aerospace & Automotive Market include Toray Industries Inc., Teijin Limited, Hexcel Corporation, Solvay S.A., SGL Carbon SE, Mitsubishi Chemical Corporation, Owens Corning, Huntsman Corporation, BASF SE, DuPont de Nemours Inc., Gurit Holding AG, Victrex plc, Koninklijke Ten Cate NV, DowAksa Advanced Composites Holdings B.V., and Formosa Plastics Corporation.

## Key Developments:

In February 2026, Toray Industries Inc. Toray Industries announced an agreement to establish a dedicated carbon fiber production joint venture targeting the European automotive sector, with an initial annual capacity of 3,000 metric tons focused on automotive-grade precursor and fiber suitable for structural body components. The facility is designed to support European automakers' localization requirements and reduce supply chain exposure for electric vehicle composite structural applications.

In March 2026, Hexcel Corporation Hexcel Corporation unveiled its next-generation HexPly thermoplastic prepreg system, engineered for out-of-autoclave processing in automotive structural applications. The product enables cycle times below two minutes in compression molding processes, addressing the historical barrier to high-volume composite adoption in passenger vehicle manufacturing and positioning Hexcel for qualification programs at multiple European and North American automotive OEMs.

## Fiber Types Covered:

Carbon Fiber Composites

Glass Fiber Composites

Aramid Fiber Composites

Basalt Fiber Composites

Natural Fiber Composites

## Resin Types Covered:

Thermoset Composites

Thermoplastic Composites

Other Resin Types

**Manufacturing Processes Covered:**

Hand Lay-Up

Filament Winding

Resin Transfer Molding (RTM)

Vacuum Infusion Process

Compression Molding

Injection Molding

Pultrusion

Automated Fiber Placement (AFP)

Automated Tape Laying (ATL)

**Product Forms Covered:**

Structural Composites

Semi-Structural Composites

Non-Structural Composites

**Vehicle Types Covered:**

Passenger Vehicles

Light Commercial Vehicles (LCVs)

Heavy Commercial Vehicles (HCVs)

Electric Vehicles (EVs)

End Users Covered:

Aerospace

Automotive

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

#### Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

#### South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

**What our report offers:**

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032

and 2034

- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

### **Free Customization Offerings:**

All the customers of this report will be entitled to receive one of the following free customization options:

#### Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

#### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

#### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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