

Aerospace Composites & Advanced Lightweight Alloys Market Forecasts to 2034 - Global Analysis By Matrix Type (Thermoset Composites, Thermoplastic Composites, Metal Matrix Composites (MMC) and Ceramic Matrix Composites (CMC)), Material Type, Manufacturing Process, Application, End User and By Geography

<https://marketpublishers.com/r/AB057696A611EN.html>

Date: June 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: AB057696A611EN

Abstracts

According to Statistics MRC, the Global Aerospace Composites & Advanced Lightweight Alloys Market is accounted for \$38.8 billion in 2026 and is expected to reach \$85.0 billion by 2034 growing at a CAGR of 10.3% during the forecast period. Aerospace Composites & Advanced Lightweight Alloys encompass advanced materials designed to achieve lower aircraft weight without compromising structural strength, durability, or operational reliability. Carbon-fiber composites offer excellent strength-to-weight performance, while aluminum, titanium, and newer lightweight alloys contribute to efficient aerospace structures. Their applications span airframes, propulsion components, interiors, and spacecraft systems. Ongoing advances in material design, processing technologies, and manufacturing are expanding their role in aerospace engineering. Demand is also supported by efforts to improve aircraft efficiency, reduce fuel consumption, lower emissions, and enhance performance across next-generation aerospace platforms.

According to IATA, global air passenger demand increased 5.3% in 2025 compared with 2024, while total capacity increased 5.2%, indicating continued expansion of the aviation industry that supports demand for aircraft materials and components.

Market Dynamics:

Driver:**Demand for lightweight aircraft structures**

Increasing requirements for lightweight aircraft structures are supporting growth in the Aerospace Composites & Advanced Lightweight Alloys Market. Aircraft manufacturers and airlines are adopting materials that lower overall weight without compromising strength, durability, or safety. Carbon-fiber composites, titanium alloys, and advanced aluminum materials can contribute to improved fuel economy and operational performance. Applications across wings, fuselages, engines, and structural components are expanding their utilization. Growing attention to efficiency and lower aviation emissions is also encouraging aerospace companies to integrate lightweight materials into next-generation aircraft designs.

Restraint:**High material and manufacturing costs**

Elevated material and production expenses remain a significant constraint for the Aerospace Composites & Advanced Lightweight Alloys Market. Carbon-fiber composites, titanium-based materials, and other advanced lightweight solutions can involve costly inputs, specialized machinery, and tightly controlled manufacturing conditions. Processes including fiber placement, composite curing, precision machining, and advanced joining add to production costs. Furthermore, specialized tooling, inspection equipment, certification procedures, and skilled technical workers can increase investment requirements throughout the aerospace component manufacturing process.

Opportunity:**Development of next-generation lightweight materials**

Advances in next-generation lightweight materials are creating new opportunities within the Aerospace Composites & Advanced Lightweight Alloys Market. Companies are developing improved carbon-fiber composites, hybrid structures, titanium materials, advanced aluminum alloys, and other engineered solutions that combine low weight with high performance. Progress in material design, processing, and recyclability can improve efficiency and address production challenges. Research into multifunctional, heat-resistant, and durable materials further supports opportunities for developing sophisticated aerospace structures and components.

Threat:

Supply chain disruptions for critical materials

Disruptions affecting the supply of critical aerospace materials can challenge the Aerospace Composites & Advanced Lightweight Alloys Market. Carbon fiber, specialty resins, titanium, aluminum, and other high-performance inputs often rely on specialized suppliers and concentrated supply networks. Geopolitical tensions, trade restrictions, logistics problems, and shortages can reduce material availability and delay manufacturing activities. These conditions may increase purchasing expenses and lengthen delivery periods for aerospace companies. Supply uncertainty can also require higher inventories, complicate production planning, and create difficulties in maintaining consistent schedules for advanced aerospace component manufacturing.

Covid-19 Impact:

The COVID-19 pandemic affected the Aerospace Composites & Advanced Lightweight Alloys Market through lower passenger traffic, reduced aircraft manufacturing, and constrained airline investments. Manufacturing shutdowns, labour shortages, logistics disruptions, and delayed supply deliveries created additional challenges for material producers and aerospace suppliers. Weak commercial aviation activity reduced requirements for advanced materials during the crisis, although defense and space programs offered continued demand. The disruption also encouraged aerospace companies to diversify suppliers, improve inventory planning, and develop more resilient manufacturing operations.

The thermoset composites segment is expected to be the largest during the forecast period

The thermoset composites segment is expected to account for the largest market share during the forecast period because of their extensive application across aerospace structures. They deliver favorable strength-to-weight characteristics, dimensional stability, fatigue resistance, and durability in demanding environments. Their use in wings, fuselage structures, engine components, and aircraft interiors contributes to broad utilization. Compatibility with existing aerospace manufacturing processes enables thermoset composites to remain a key material solution for lightweight aircraft structures and advanced aerospace component development.

The UAV manufacturers segment is expected to have the

highest CAGR during the forecast period

Over the forecast period, the UAV manufacturers segment is predicted to witness the highest growth rate as unmanned aircraft increasingly utilize lightweight, high-performance materials. Composite materials offer strength, low weight, durability, and structural flexibility, making them suitable for various UAV designs. Growth in defense, surveillance, commercial, and emerging unmanned applications is supporting greater use of advanced materials. Research programs supported by the FAA have also examined composite materials for unmanned aircraft systems, reinforcing the focus on material development and lightweight structural technologies within the UAV industry.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, benefiting from its mature aerospace industry, large manufacturing base, and concentration of major aircraft manufacturers and suppliers. The region possesses advanced capabilities in composite production, lightweight materials, and aerospace engineering. Demand is supported by commercial aircraft manufacturing, defense activities, and development of advanced aerospace technologies. Airbus has expanded its U.S. manufacturing footprint, including facilities producing advanced composite structures, highlighting North America's significant role in aerospace manufacturing and the development of lightweight material technologies.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, driven by rising aircraft production, expanding commercial aviation, defence programs, and investments in aerospace manufacturing capabilities. Countries including China, India, and Japan are developing stronger aerospace ecosystems and supply networks, creating greater demand for advanced lightweight materials. Efforts to improve aircraft efficiency and strengthen domestic aerospace manufacturing are also supporting adoption. Growth in commercial aircraft, military systems, UAVs, and space activities is expected to further contribute to the region's market expansion.

Key players in the market

Some of the key players in Aerospace Composites & Advanced Lightweight Alloys Market include Hexcel Corporation, Toray Industries, Solvay (Cytec), Teijin Limited, Mitsubishi Chemical Corporation, SGL Carbon, Howmet Aerospace, Constellium, ATI

Metals, VSMPO-AVISMA Corporation, Carpenter Technology, Thyssenkrupp Aerospace, Kobe Steel, BASF SE, DuPont, Huntsman Corporation, Morgan Advanced Materials and Alcoa Corporation.

Key Developments:

In October 2025, Toray Industries, Inc. and Hyundai Motor Group signed a Strategic Joint Development Agreement to collaborate on advanced materials and components innovation, aiming to set new standards in future mobility. This agreement marks an important milestone in our partnership, as it represents the first tangible outcome of our strategic collaboration initiated last year.

In September 2025, Mitsubishi Chemical Corporation has officially announced that it has entered into an Agreement on Coordination and Cooperation for the Maintenance and Development of the Yokkaichi Industrial Complex. This agreement, involves three parties—Mitsubishi Chemical, Mie Prefecture, and Yokkaichi City.

Matrix Types Covered:

Thermoset Composites

Thermoplastic Composites

Metal Matrix Composites (MMC)

Ceramic Matrix Composites (CMC)

Material Types Covered:

Carbon Fiber Composites

Glass Fiber Composites

Aramid Fiber Composites

Hybrid Composites

Aluminum Alloys

Titanium Alloys

Magnesium Alloys

High-Temperature Alloys

Manufacturing Processes Covered:

Hand Layup

Resin Transfer Molding (RTM)

Filament Winding

Pultrusion

Automated Fiber Placement (AFP)

Additive Manufacturing

Forging & Casting

Powder Metallurgy

Applications Covered:

Aircraft Structures

Propulsion Systems

Interior Components

Avionics & Electronics Housing

Spacecraft Structures

UAVs & Drones

End Users Covered:

Commercial Aviation

Military & Defense Aviation

Space Exploration & Satellites

UAV Manufacturers

Aerospace OEMs & Tier-1 Suppliers

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

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY MATRIX TYPE

- 5.1 Thermoset Composites
- 5.2 Thermoplastic Composites
- 5.3 Metal Matrix Composites (MMC)
- 5.4 Ceramic Matrix Composites (CMC)

6 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY MATERIAL TYPE

- 6.1 Carbon Fiber Composites
- 6.2 Glass Fiber Composites
- 6.3 Aramid Fiber Composites
- 6.4 Hybrid Composites
- 6.5 Aluminum Alloys
- 6.6 Titanium Alloys
- 6.7 Magnesium Alloys
- 6.8 High-Temperature Alloys

7 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY MANUFACTURING PROCESS

- 7.1 Hand Layup
- 7.2 Resin Transfer Molding (RTM)
- 7.3 Filament Winding
- 7.4 Pultrusion
- 7.5 Automated Fiber Placement (AFP)
- 7.6 Additive Manufacturing
- 7.7 Forging & Casting
- 7.8 Powder Metallurgy

8 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY APPLICATION

- 8.1 Aircraft Structures
- 8.2 Propulsion Systems
- 8.3 Interior Components
- 8.4 Avionics & Electronics Housing
- 8.5 Spacecraft Structures
- 8.6 UAVs & Drones

9 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY END USER

- 9.1 Commercial Aviation
- 9.2 Military & Defense Aviation
- 9.3 Space Exploration & Satellites
- 9.4 UAV Manufacturers
- 9.5 Aerospace OEMs & Tier-1 Suppliers

10 GLOBAL AEROSPACE COMPOSITES & ADVANCED LIGHTWEIGHT ALLOYS MARKET, BY GEOGRAPHY

- 10.1 North America
 - 10.1.1 United States
 - 10.1.2 Canada
 - 10.1.3 Mexico
- 10.2 Europe
 - 10.2.1 United Kingdom
 - 10.2.2 Germany
 - 10.2.3 France
 - 10.2.4 Italy
 - 10.2.5 Spain
 - 10.2.6 Netherlands
 - 10.2.7 Belgium
 - 10.2.8 Sweden
 - 10.2.9 Switzerland
 - 10.2.10 Poland
 - 10.2.11 Rest of Europe
- 10.3 Asia Pacific
 - 10.3.1 China
 - 10.3.2 Japan
 - 10.3.3 India

- 10.3.4 South Korea
- 10.3.5 Australia
- 10.3.6 Indonesia
- 10.3.7 Thailand
- 10.3.8 Malaysia
- 10.3.9 Singapore
- 10.3.10 Vietnam
- 10.3.11 Rest of Asia Pacific
- 10.4 South America
 - 10.4.1 Brazil
 - 10.4.2 Argentina
 - 10.4.3 Colombia
 - 10.4.4 Chile
 - 10.4.5 Peru
 - 10.4.6 Rest of South America
- 10.5 Rest of the World (RoW)
 - 10.5.1 Middle East
 - 10.5.1.1 Saudi Arabia
 - 10.5.1.2 United Arab Emirates
 - 10.5.1.3 Qatar
 - 10.5.1.4 Israel
 - 10.5.1.5 Rest of Middle East
 - 10.5.2 Africa
 - 10.5.2.1 South Africa
 - 10.5.2.2 Egypt
 - 10.5.2.3 Morocco
 - 10.5.2.4 Rest of Africa

11 STRATEGIC MARKET INTELLIGENCE

- 11.1 Industry Value Network and Supply Chain Assessment
- 11.2 White-Space and Opportunity Mapping
- 11.3 Product Evolution and Market Life Cycle Analysis
- 11.4 Channel, Distributor, and Go-to-Market Assessment

12 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 12.1 Mergers and Acquisitions
- 12.2 Partnerships, Alliances, and Joint Ventures

12.3 New Product Launches and Certifications

12.4 Capacity Expansion and Investments

12.5 Other Strategic Initiatives

13 COMPANY PROFILES

13.1 Hexcel Corporation

13.2 Toray Industries

13.3 Solvay (Cytec)

13.4 Teijin Limited

13.5 Mitsubishi Chemical Corporation

13.6 SGL Carbon

13.7 Howmet Aerospace

13.8 Constellium

13.9 ATI Metals

13.10 VSMPO-AVISMA Corporation

13.11 Carpenter Technology

13.12 Thyssenkrupp Aerospace

13.13 Kobe Steel

13.14 BASF SE

13.15 DuPont

13.16 Huntsman Corporation

13.17 Morgan Advanced Materials

13.18 Alcoa Corporation

List of Tables

Table 1 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Matrix Type (2023-2034) (\$MN)

Table 3 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Thermoset Composites (2023-2034) (\$MN)

Table 4 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Thermoplastic Composites (2023-2034) (\$MN)

Table 5 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Metal Matrix Composites (MMC) (2023-2034) (\$MN)

Table 6 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Ceramic Matrix Composites (CMC) (2023-2034) (\$MN)

Table 7 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Material Type (2023-2034) (\$MN)

Table 8 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Carbon Fiber Composites (2023-2034) (\$MN)
Table 9 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Glass Fiber Composites (2023-2034) (\$MN)
Table 10 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Aramid Fiber Composites (2023-2034) (\$MN)
Table 11 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Hybrid Composites (2023-2034) (\$MN)
Table 12 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Aluminum Alloys (2023-2034) (\$MN)
Table 13 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Titanium Alloys (2023-2034) (\$MN)
Table 14 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Magnesium Alloys (2023-2034) (\$MN)
Table 15 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By High-Temperature Alloys (2023-2034) (\$MN)
Table 16 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Manufacturing Process (2023-2034) (\$MN)
Table 17 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Hand Layup (2023-2034) (\$MN)
Table 18 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Resin Transfer Molding (RTM) (2023-2034) (\$MN)
Table 19 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Filament Winding (2023-2034) (\$MN)
Table 20 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Pultrusion (2023-2034) (\$MN)
Table 21 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Automated Fiber Placement (AFP) (2023-2034) (\$MN)
Table 22 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Additive Manufacturing (2023-2034) (\$MN)
Table 23 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Forging & Casting (2023-2034) (\$MN)
Table 24 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Powder Metallurgy (2023-2034) (\$MN)
Table 25 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Application (2023-2034) (\$MN)
Table 26 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook, By Aircraft Structures (2023-2034) (\$MN)
Table 27 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,

By Propulsion Systems (2023-2034) (\$MN)

Table 28 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Interior Components (2023-2034) (\$MN)

Table 29 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Avionics & Electronics Housing (2023-2034) (\$MN)

Table 30 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Spacecraft Structures (2023-2034) (\$MN)

Table 31 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By UAVs & Drones (2023-2034) (\$MN)

Table 32 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By End User (2023-2034) (\$MN)

Table 33 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Commercial Aviation (2023-2034) (\$MN)

Table 34 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Military & Defense Aviation (2023-2034) (\$MN)

Table 35 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Space Exploration & Satellites (2023-2034) (\$MN)

Table 36 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By UAV Manufacturers (2023-2034) (\$MN)

Table 37 Global Aerospace Composites & Advanced Lightweight Alloys Market Outlook,
By Aerospace OEMs & Tier-1 Suppliers (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

I would like to order

Product name: Aerospace Composites & Advanced Lightweight Alloys Market Forecasts to 2034 - Global Analysis By Matrix Type (Thermoset Composites, Thermoplastic Composites, Metal Matrix Composites (MMC) and Ceramic Matrix Composites (CMC)), Material Type, Manufacturing Process, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/AB057696A611EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/AB057696A611EN.html>