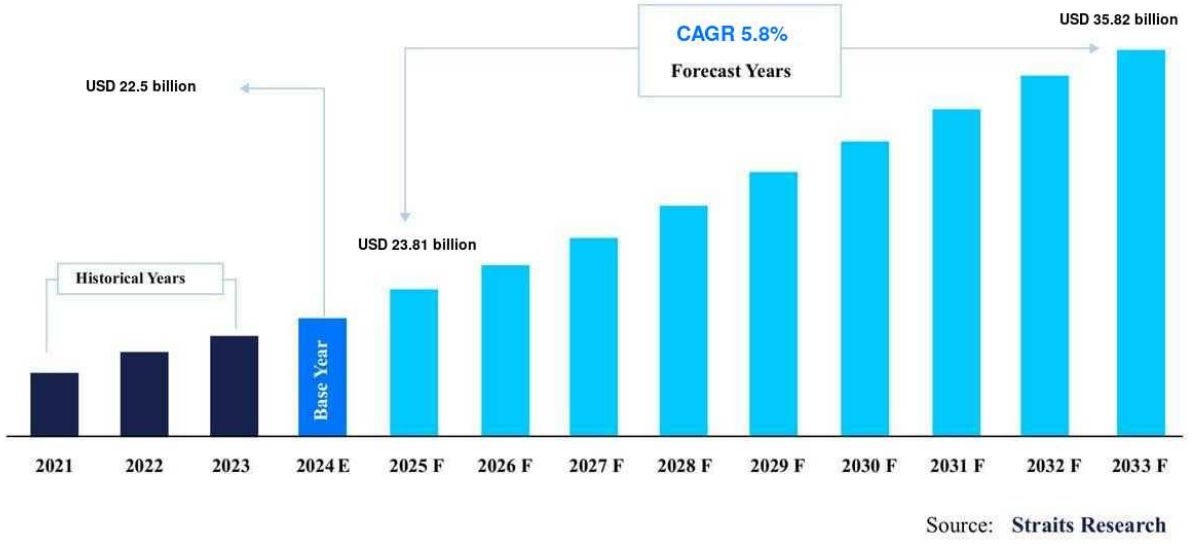
Aerospace and Defense Materials Market Study

www.straitsresearch.com

About Us

Straits Research Pvt Ltd is a leading market research firm offering comprehensive insights on market demand, trends, growth prospects and regional analysis. With over 35 years of combined experience, we provide premium qualitative insights on consumer preferences, regulatory landscape, and technological advancements along with quantitative insights on industry market size, global economic scenario and revenue opportunities. These reports are backed by high-quality data sourced from primary sources and large secondary databases. With analyst perspectives and insights included in every report, Straits Research delivers comprehensive market intelligence and detailed analysis to help clients make informed decisions.

Table of Content



Emerging Countries

United States | Germany | China

Emerging Companies

Alcoa Corporation | Hexcel Corporation | Toray Industries Inc

Company Profiles

Alcoa Corporation | Hexcel Corporation | Toray Industries, Inc. | Arconic Corporation | Allegheny Technologies Incorporated (ATI) | Cytec Solvay Group | AMG Advanced Metallurgical Group | Teijin Limited | Materion Corporation | Precision Castparts Corp. | Others

Note: More company profiles available on full reports.

Top 5 Company Market Share

Total

44%

Top 5 company market share

Market Trends

Growth Trends

- Increased spending on defense systems due to geopolitical instability.
- Innovation and technological advancements in the aerospace industry.
- Growing demand for lightweight and durable materials in the aerospace sector for fuel efficiency.
- Incline in commercial aircraft orders due to the growth of global air travel.
- The trend of recycling and reuse of aerospace and defense materials.
- Adoption of composites and alloys for aircraft construction.

Factors considered while calculating market size and share

- Current and future demand for aerospace and defense materials.
- Global production and consumption rates of these materials.
- The number of key players in the market and their market shares.
- The impact of technological advancements on the need for specific materials.
- Market trends, including changes in consumer behavior or industry developments.
- The impact of government regulations on the production and use of these materials.
- Global socio-economic and political conditions influencing the defense and aerospace sectors.

Key Market Indicators

- Average selling prices of aerospace and defense materials.
- The volume of sales and consumption of these materials in different regions.
- Value chain and supply chain analysis for these materials.
- Changes in raw material prices.
- The aerospace and defense industry's Gross Domestic Product (GDP) contribution in major markets.
- Trade statistics: imports, exports, tariffs, and trade balance for these materials.

Supply chain disruptions

Given the complexity and global nature of its operations, the aerospace and defense industry faces significant challenges from supply chain disruptions. The reliance on specialized materials, components, and suppliers sourced from various parts of the world makes the supply chain highly susceptible to disruptions. Geopolitical tensions, natural disasters, or unexpected events such as the COVID-19 pandemic can create cascading effects, leading to production delays, escalating costs, and shortages of critical materials.

Even minor disruptions in the supply chain can significantly impact production timelines, operational efficiency, and profitability. Therefore, manufacturers must navigate these challenges by diversifying supplier networks, investing in local sourcing, and adopting advanced logistics strategies to mitigate risks and ensure stability in material availability.

Market Trends

Rising demand for fuel-efficient aircraft

The growing emphasis on fuel efficiency is driving the adoption of lightweight composite materials in the aerospace and defense industry. These materials reduce aircraft weight, enhance aerodynamics, and improve fuel economy. Modern airplanes featuring composite wings achieve greater aerodynamic efficiency, leading to significant cost and environmental benefits.

- According to the Air Transport Action Group, each new generation of aircraft is up to 20% more fuel-efficient than its predecessor. This has resulted in modern aircraft producing 80% less CO2 per seat compared to the first-generation jets.

The industry's commitment to sustainability is evident as manufacturers integrate advanced materials to address environmental concerns while maintaining cost-effectiveness. Such innovations are pivotal in meeting rising demands for eco-friendly and efficient aviation solutions.

Expansion of defense budgets globally

The global increase in defense budgets presents a significant opportunity for the aerospace and defense materials market. As nations prioritize upgrading their military capabilities, the demand for advanced materials, such as lightweight alloys, composites, and specialized coatings, continues to grow. These materials play a crucial role in enhancing the performance, durability, and efficiency of defense equipment.

- For instance, The U.S. Department of Defense increased its budget for missile and munitions procurement and R&D by 340% over the past decade, rising from $9 billion in fiscal 2015 to $30.6 billion in fiscal 2024.

Similarly, the European Commission has allocated €7.3 billion for military and defense technology investments from 2021 to 2027. These developments not only drive innovation in materials manufacturing but also expand contracts for aerospace companies, fostering industry growth and technological advancement.

Market Segments

By Material Type

Aluminum alloys, holding the largest sub-segment with a 36-38% share, are preferred for lightweight, corrosion-resistant aircraft structures and fuel efficiency demands.

36-38%

Aluminum Alloys

By Applications

Commercial aviation dominates with a 48-51% share, fueled by rising passenger demand, fleet upgrades, and fuel-efficient designs, relying heavily on composites and aluminum for cost-effective, lightweight solutions.

48-51%

Commercial Aviation

Regional Overview

North America

North America leads with a 40% share, anchored by the U.S. (80-85% of region), home to aerospace giants, robust defense budgets, and innovation hubs driving material demand.

80-82%

United States Market Share

Europe

Europe holds a 25% share, with Germany (28-30% of region) at the forefront, supported by Airbus, advanced manufacturing, and collaborative defense projects across the continent.

28-30%

Germany Market Share

APAC

Asia Pacific captures 20%, led by China (XX% of region), with booming aviation, state-backed space programs, and increasing demand for lightweight, high-performance materials.

XX%

China Market Share

Regional Overview

Middle East and Africa

Middle East and Africa hold 10%, with Saudi Arabia (XX% of region) driving demand through defense spending and emerging aviation hubs like Dubai and Riyadh.

XX%

Saudi Arabia Market Share

LATAM

LATAM accounts for 5%, with Brazil (XX% of region) spearheading growth via Embraer's commercial aviation success and modest defense material requirements.

XX%

Brazil Market Share

Company Profiles

Companies	Websites	Headquaters	Establisheds	Key Executives	Revenues
Alcoa Corporation	https://www.alcoa.com/global/en/home/	Pittsburgh, PA, USA	1888	Roy Harvey (CEO)	~USD 10.6 Billion
Hexcel Corporation	https://www.hexcel.com/	Stamford, CT, USA	1948	Nick Stanage (CEO)	~USD 1.9 Billion
Toray Industries, Inc.	https://www.toray.com/global/	Tokyo, Japan	1926	Akihiro Nikkaku (President)	~USD 18 Billion
Arconic Corporation	https://www.arconic.com/	Pittsburgh, PA, USA	2016	Tim Myers (CEO)	~USD 7.5 Billion
Cytec Solvay Group	https://www.solvay.com/en/	Brussels, Belgium	1863 (Solvay); Cytec acquired 2015	Ilham Kadri (CEO, Solvay)	~USD 12 Billion

Disclaimer

The information and opinions in this report were prepared by the Straits Research team. The information herein is believed to be reliable and has been obtained from authentic public sources, and as per the analyst's perspective and understanding of the market. Our customers acknowledge, when ordering, that research and analysis are for our customers 'internal use and not for general publication or disclosure to third parties', unless consent provided explicitly on email by Straits Research team. This document contains confidential information and is the exclusive property of Straits Research. Any reproduction, distribution, or quotation of its contents, in whole or in part, is strictly prohibited without prior written consent from Straits Research. This document is intended solely for the use of the purchasing client and may not be shared with any third party without explicit authorization. For further details on usage terms, please refer to the accompanying disclaimer. Quantitative market information is based primarily on interviews and therefore, is subject to fluctuation. Straits Research does not endorse any vendors, Technology or Duration depicted in their research publications. Straits Research and analysis publications consist of the opinions of research and should not be construed as statements of fact. Straits Research disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. Straits Research takes no responsibility for any incorrect information supplied to us by manufacturers or users or by external databases. All trademarks, copyrights and other of intellectual property belong to their respective owners and may be protected by copyright. Under no circumstance may any of these be reproduced in any Technology without the prior written agreement of their owner. No part of this strategic analysis may be given, lent, resold or disclosed to non-customers without the written permission of Straits Research. Any concerns with the scope and definition of the market needs to be understood and cleared from the Straits Research team by the customer before purchasing. Furthermore, please note that any issues arising from the use of the data provided in this report shall not be the responsibility of Straits Research. Straits Research, its parent/subsidiary companies, analysts, or management shall not be held liable or accountable to any party for questions or issues arising from the data or analysis provided herein. The information presented in this report represents the perspective of our analysts and should be utilized for business decisions at your own risk. It is important to acknowledge that the content or data included in this document, whether in sample form or in the final deliverables, does not constitute financial, legal, investment, strategic, or marketing advice. The data should be regarded as a reference point for your own market study and understanding. Any losses, legal issues, or problems incurred as a result of using the information in the sample or final report shall not be attributed to Straits Research, its parent/subsidiary companies, analysts, or management.

Straits Research