

Rising Demand for Aluminum Alloys in Aerospace Sector Drives Market Growth

Discover how rising demand for lightweight, high-quality metals is driving growth in the aluminum alloys aerospace materials market

VANCOUVER, BC, CANADA, June 19, 2024 /EINPresswire.com/ -- The global [aluminum alloys aerospace materials market](#) size was USD 4.63 Billion in 2022 and is expected to register a rapid revenue CAGR of 3.7% during the forecast period. The increasing demand for innovative, high-quality metals and the rising adoption of lightweight materials to reduce aircraft weight are significantly driving the growth of the aluminum alloys aerospace materials market. Aluminum alloys, particularly known for their exceptional strength-to-weight ratio, are becoming indispensable in the aerospace industry, including applications in jets, gliders, and helicopters.



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Key Market Drivers

The surge in air travel and the need to enhance fuel efficiency are propelling the demand for lightweight materials in aircraft manufacturing. This demand is expected to grow over the next decade, with the market for aluminum alloys projected to reach 68.7 million tonnes, marking an 8% increase from 2020. The aerospace sector, including commercial aircraft, military aircraft, and specialized applications, is a major contributor to this growth.

Aluminum Alloys in Aerospace

Aluminum alloys, particularly those within the aluminum-copper-magnesium systems, are highly valued for their yield and tensile strength, often reaching up to 570 MPa. These properties make

them crucial for industries where performance is significantly impacted by impurities.

Manufacturers are witnessing a substantial increase in orders and sales volumes, driven by the high demand for lightweight and durable materials. A notable development includes Constellium SE's introduction of Ahead, a high-performance aluminum powder designed for additive manufacturing, launched on June 23, 2020.

Challenges in the Market

Despite the positive growth, the market faces challenges such as the volatile cost of aluminum alloys and stiff competition from composite materials. The complex manufacturing process and the higher operational expenses also pose significant barriers. Additionally, aluminum alloys are prone to corrosion when exposed to acidic or saltwater environments, which could further restrain market growth.

Market Segmentation Insights

The market is segmented based on alloy type, grade, and application.

By Alloy Type: The market is divided into high strength alloy and ultra-high strength alloy. The high strength alloy segment dominated the market in 2022, largely due to its extensive use in fuselage, wing, and engine components.

By Grade: The market is segmented into heat treatable and non-heat treatable alloys. Heat treatable alloys are expected to see significant growth due to their mechanical and physical advantages. Innovations like Alcoa's C611 EZCast alloy, which does not require specialized heat treatment, are paving the way for more efficient manufacturing processes.

By Series: The market includes series 2000, 3000, 5000, and 7000 aluminum alloys. The series 7000 segment is anticipated to hold a substantial market share, driven by its superior heat dissipation and corrosion resistance properties, making it ideal for aerospace applications.

By Application: The commercial aircraft segment is projected to experience steady growth due to the increasing need for lightweight materials. Aluminum alloys contribute to significant weight reduction, improved fuel efficiency, and lower emissions, making them a preferred choice in commercial aircraft manufacturing.

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Aluminum Alloys Aerospace Materials Top Companies and Competitive Landscape

The global aluminum alloys aerospace materials market is fragmented, with large and medium-

sized players accounting for the majority of market revenue. Major players are deploying various strategies, entering into mergers & acquisitions, strategic agreements & contracts, developing, testing, and introducing more effective aluminum alloys aerospace.

Some of the major companies included in the global aluminum alloys aerospace materials market report are:

Rio Tinto

Alcoa Corporation

Rusal

Kaiser Aluminum

Huntsman International LLC

Kobe Steel Ltd

DOW

AMI Metal Inc.

Aleris International Inc.

Constellium N.V.

Hexcel Corporation

Aperam

Precision Castparts Corporation

Solvay

Teijin Limited

Aluminum Alloys Aerospace Materials Latest Industry News

On 21 June, 2023, Solvay and Spirit AeroSystems (Europe) Limited strengthened their relationship as Solvay became a strategic partner of the Spirit Aerospace Innovation Center (AIC) in Prestwick, Scotland. AIC facilitates collaborative research on sustainable aviation technologies and processes with Spirit's industry, academic, and supply chain Both companies intend to

further engage in integrated development opportunities to meet the performance, cost, and production rate requirements of future aircraft.

On 19 June, 2023, Constellium SE and TARMAC Aerosave will explore the development of technologies and processes to recover aluminum from end-of-life aircraft and reuse it across the aerospace value chain, while maintaining the material's properties and performance. Aluminum's footprint compares favorably to competing materials used in aircraft manufacturing, and recycled aluminum adds to this advantage. Recycled aluminum uses only 5% of the energy required to produce the primary metal, resulting in Carbon Dioxide (CO₂) emissions below 95% for aluminum produced for commercial aircraft.

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Aluminum Alloys Aerospace Materials Market Segment Analysis

For the purpose of this report, Emergen Research has segmented the global aluminum alloys aerospace materials market on the basis of type, grade, type case, application, and region:

Type Outlook (Revenue, USD Billion; 2019-2032)

High Strength Alloys

Ultra-High Strength Alloys

Grade Outlook (Revenue, USD Billion; 2019-2032)

Heat Treatable Alloys

Non-Heat Treatable Alloys

Type Cause Outlook (Revenue, USD Billion; 2019-2032)

Series 2000

Series 3000

Series 5000

Series 7000

Application Outlook (Revenue, USD Billion,; 2019-2032)

Commercial Aircraft

Military Aircraft

Others

Regional Outlook (Revenue, USD Billion; 2019–2032)

North America

U.S.

Canada

Mexico

Europe

Germany

France

UK

Italy

Spain

Benelux

Rest of Europe

Asia Pacific

China

India

Japan

South Korea

Rest of APAC

Latin America

Brazil

Rest of LATAM

Middle East & Africa

Saudi Arabia

UAE

South Africa

Turkey

Rest of Middle East & Africa

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