

Low-Carbon Aluminum Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Flat-Rolled, Castings, Extrusion, Forgings, Rod and Bar, Others), By End User (Transportation, Building and Construction, Electrical Industry, Consumer Goods, Foil and Packaging, Machinery and Equipment, Others), By Region and Competition, 2019-2029F

<https://marketpublishers.com/r/L48F31706A85EN.html>

Date: May 2024

Pages: 185

Price: US\$ 4,900.00 (Single User License)

ID: L48F31706A85EN

Abstracts

Global Low-Carbon Aluminum Market was valued at USD 82.46 billion in 2023 and is anticipated to project robust growth in the forecast period with a CAGR of 4.45% through 2029. Major players in the industry are heavily investing in research and development endeavors aimed at improving the production efficiency of low-carbon aluminum while simultaneously working towards cost reduction. These concerted actions not only position low-carbon aluminum as a highly competitive alternative to conventional aluminum but also drive its widespread adoption across various sectors.

The significant role of government initiatives worldwide in promoting the production and utilization of low-carbon aluminum cannot be overstated. These initiatives take various forms, including funding for research projects, tax incentives for companies embracing sustainable practices, and the implementation of policies to curb carbon emissions. Such comprehensive measures create a conducive environment for the expansion and prevalence of low-carbon aluminum.

The demand for low-carbon aluminum is experiencing notable growth, with global demand for primary aluminum estimated at around 70 million tons. This increasing

demand underscores the recognition of low-carbon aluminum's potential in aiding industries in reducing their carbon footprint and contributing to the global transition towards cleaner and more sustainable industrial processes. As the world continues to prioritize environmental sustainability, low-carbon aluminum is poised to play an increasingly significant role in shaping the future of industrial operations.

The availability of transparent and real-time price assessments, such as the Low-Carbon Aluminum Price (LCAP) and Zero-Carbon Aluminum Price (ZCAP) provided by S&P Global Commodity Insights, adds another layer of confidence and reliability to the market. These assessments equip stakeholders with valuable insights to make informed decisions and navigate the market landscape with enhanced certainty. By aligning their strategies with the evolving dynamics of the low-carbon aluminum market, market participants can ensure sustainable growth and long-term success.

Key Market Drivers

Growing Demand of Low-Carbon Aluminum from Automotive Industry

The integration of aluminum into vehicle manufacturing has been a longstanding practice within the automotive industry. Recognized for its lightweight properties and resistance to corrosion, aluminum has been a favored material for various automotive components. The recent transition to low-carbon aluminum marks a notable advancement in the industry's commitment to sustainability and emissions reduction.

The incorporation of low-carbon aluminum into vehicle production signifies a proactive approach by manufacturers to address the environmental impact of vehicles across their entire life cycle. Studies have consistently demonstrated that the use of aluminum in vehicle lightweighting can substantially decrease the environmental footprint during the vehicle's operational phase. This is particularly beneficial for electric vehicles (EVs), where weight reduction directly correlates with extended battery range and improved overall energy efficiency.

As the demand for EVs continues to escalate, the automotive sector is intensifying efforts towards achieving zero emissions. Low-carbon aluminum has emerged as a pivotal component in this endeavor. The proliferation of lightweight electric vehicles underscores the heightened demand for low-carbon aluminum within the automotive domain.

Leading vehicle manufacturers and Tier 1 suppliers are actively embracing this

transition towards low-carbon aluminum. For instance, companies like BMW are proactively sourcing low-carbon aluminum from environmentally responsible suppliers such as Rio Tinto's hydro-powered operations in Canada. This collaborative approach exemplifies the industry's dedication to sustainable sourcing practices and environmental stewardship.

In response to the escalating demand for low-carbon aluminum, industry players like Hydro are implementing strategic initiatives. These include the establishment of new casting lines to ensure a consistent supply of low-carbon forging stock, thereby meeting the evolving needs of the market. Such proactive measures not only address the current demand but also signal the industry's readiness to accommodate the projected surge in low-carbon aluminum utilization.

Growing Demand of Low-Carbon Aluminum from Construction Industry

The construction industry has long favored aluminum due to its resilience, adaptability, and resistance to corrosion, qualities that have significantly influenced modern architectural designs and infrastructure development. With the increasing emphasis on environmental considerations, there is a growing recognition within the sector for the adoption of sustainable practices.

In response to the escalating demand for environmentally friendly construction materials, there has been a recent pivot towards the utilization of low-carbon aluminum. This variant of aluminum is manufactured using renewable energy sources, resulting in substantially reduced carbon emissions compared to conventional production methods. By embracing low-carbon aluminum, construction projects can effectively mitigate their environmental impact and contribute to a more sustainable future.

The adoption of low-carbon aluminum not only underscores the industry's commitment to sustainability but also addresses the mounting regulatory pressure to curb carbon emissions. Governments worldwide are implementing stringent regulations and standards to promote sustainable construction practices. By integrating low-carbon aluminum into their projects, construction firms can proactively align with these mandates and position themselves as trailblazers in the field.

Leading construction entities, such as Hydro, a prominent global aluminum producer, are already taking significant strides in embracing low-carbon aluminum. With a steadfast focus on innovation and sustainability, Hydro anticipates a rapid uptick in demand for its low-carbon aluminum offerings in the coming years, reflecting the

industry's broader shift towards eco-conscious materials and practices.

Key Market Challenges

Disruptions in Supply Chain

Aluminum producers worldwide are grappling with significant hurdles as they strive to maintain competitiveness amidst ongoing disruptions. The inherent volatility of the aluminum market, coupled with the substantial costs associated with producing low-carbon aluminum, poses a formidable challenge. The market turbulence and uncertainty can undermine the incentive for suppliers to invest in low-carbon aluminum production, despite its potential to command premium prices.

In China, a key player in the global aluminum industry, the situation is further compounded by factors such as low smelter production and energy shortages. These issues exacerbate the existing challenges within the aluminum supply chain, impacting not only production but also the availability of aluminum products in the market, leading to a shortage.

The disruptions in global supply chains, which have been particularly pronounced in recent years, have also impacted the aluminum sector. Manufacturing and deployment activities have faced delays, hampering the growth trajectory of the low-carbon aluminum market.

In light of these multifaceted challenges, aluminum producers must navigate a complex landscape that necessitates strategic planning, innovative solutions, and unwavering dedication to sustainability. By addressing these challenges proactively, the industry can adapt and thrive amidst the evolving market dynamics.

Key Market Trends

Rising Demand for Sustainable Materials

One of the primary driving forces behind the market surge for lightweight materials is the escalating preference for them over heavy metals. This transition is primarily attributed to the myriad benefits offered by lightweight materials, notably low-carbon aluminum. The rising popularity of low-carbon aluminum stems from its ability to provide equivalent durability and versatility as traditional aluminum, albeit with markedly reduced environmental impact. This makes it an optimal choice for industries such as

automotive and construction, where the incorporation of lightweight materials holds promise for significantly curbing carbon emissions.

The escalating adoption of low-carbon aluminum in sustainable technologies stands out as another pivotal factor fueling its market expansion. As the quest for greener and more sustainable solutions intensifies, low-carbon aluminum emerges as a linchpin in bolstering this ongoing transition. It finds application across diverse sectors, including electric vehicles and solar panels, where its utilization contributes substantially to the advancement of cleaner and more environmentally conscious technologies.

Low-carbon aluminum is leaving an indelible mark on the landscape of green building practices. With a mounting consciousness surrounding climate change and the imperative for enduring solutions, there has been a notable uptick in demand for low-carbon aluminum products within the construction sector. This burgeoning demand has precipitated a thriving market for low-carbon construction materials, propelled by robust investments and concerted research and development endeavors aimed at furnishing more sustainable alternatives.

The burgeoning market for low-carbon aluminum is underpinned by the preference for lightweight materials, its burgeoning integration into sustainable technologies, and the soaring demand for low-carbon construction materials. These trends underscore the industry's steadfast commitment to mitigating carbon emissions and pioneering more sustainable pathways toward a greener tomorrow.

Segmental Insights

Product Insights

Based on the category of product, the flat-rolled emerged as the fastest growing segment in the global market for low-carbon aluminum in 2023. Flat-rolled aluminum stands out for its remarkable versatility, boasting the ability to be rolled into diverse thicknesses to suit various applications. This adaptable material ranges from thin sheets utilized in crafting beverage cans and automotive body panels to thicker plates essential in shipbuilding endeavors. Such flexibility enables its widespread utilization across an extensive spectrum of industries, rendering it a highly favored option.

The flourishing flat-rolled aluminum segment owes its success to robust demand spanning multiple sectors, including transportation, construction, and packaging. In the transportation domain, flat-rolled aluminum assumes a pivotal role in fabricating car

bodies, aircraft, and marine vessels. Its lightweight composition not only enhances fuel efficiency but also elevates overall performance metrics.

Within the construction landscape, flat-rolled aluminum commands dominance owing to its exceptional resilience, corrosion resistance, and aesthetic appeal. The material's capacity to endure harsh environmental elements while retaining its visual allure positions it favorably among architects and builders seeking longevity and style.

In the packaging arena, flat-rolled aluminum experiences extensive utilization, particularly in food and beverage packaging applications. Its innate characteristics furnish robust protection against contamination, safeguarding the integrity and freshness of packaged goods.

End User Insights

The transportation segment is projected to experience rapid growth during the forecast period. The transportation industry is under significant scrutiny to diminish its carbon emissions, which currently contribute to 21% of global emissions. In light of this imperative, the sector is intensifying its endeavors toward decarbonization and prioritizing the adoption of eco-friendly materials.

Among these materials, low-carbon aluminum emerges as a prime candidate, seamlessly aligning with sustainability objectives. Unlike traditional aluminum production processes, low-carbon aluminum manufacturing entails reduced energy consumption and emits fewer greenhouse gases. Integrating this environmentally conscious material across diverse applications within the transportation sector holds immense potential for substantial reductions in overall carbon emissions.

Regional Insights

North America emerged as the dominant player in the Global Low-Carbon Aluminum Market in 2023, holding the largest market share in terms of value. In North America, there's a growing expectation from both consumers and investors for industries to take substantial measures in reducing their carbon emissions. This heightened awareness of environmental impact has led to a surge in demand for low-carbon aluminum, driven by its reduced energy requirements and emissions compared to conventional production methods.

Given its pivotal role in energy transition technologies, aluminum is poised to be a

linchpin in advancing sustainable energy initiatives. Anticipated to witness exponential growth in demand over the coming decades, aluminum's versatility positions it as a cornerstone in the adoption of cleaner and more sustainable solutions worldwide. North America's proactive stance in developing and implementing these technologies positions it as a significant driver behind the increasing demand for low-carbon aluminum, contributing substantially to global efforts toward a more sustainable and environmentally conscious future.

Key Market Players

EN+ Holding Limited

Century Aluminum Company

Emirates Global Aluminium PJSC

Norsk Hydro ASA

Alcoa Corporation

China Hongqiao Group Limited

Capral Limited

Constellium SE

Reynaers Aluminium Pvt. Ltd.

Granges AB

Report Scope:

In this report, the Global Low-Carbon Aluminum Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Low-Carbon Aluminum Market, By Product:

- o Flat-Rolled

- o Castings

- o Extrusion

- o Forgings

- o Rod and Bar

- o Others

Low-Carbon Aluminum Market, By End User:

- o Transportation

- o Building and Construction

- o Electrical Industry

- o Consumer Goods

- o Foil and Packaging

- o Machinery and Equipment

- o Others

Low-Carbon Aluminum Market, By Region:

- o North America

- ? United States

- ? Canada

- ? Mexico

o Europe

? France

? United Kingdom

? Italy

? Germany

? Spain

o Asia Pacific

? China

? India

? Japan

? Australia

? South Korea

o South America

? Brazil

? Argentina

? Colombia

o Middle East & Africa

? South Africa

? Saudi Arabia

? UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Low-Carbon Aluminum Market.

Available Customizations:

Global Low-Carbon Aluminum Market report with the given market data, Tech Sci 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).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. IMPACT OF COVID-19 ON GLOBAL LOW-CARBON ALUMINUM MARKET

5. GLOBAL LOW-CARBON ALUMINUM MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Product (Flat-Rolled, Castings, Extrusion, Forgings, Rod and Bar, Others)
 - 5.2.2. By End User (Transportation, Building and Construction, Electrical Industry, Consumer Goods, Foil and Packaging, Machinery and Equipment, Others)
 - 5.2.3. By Region

- 5.2.4. By Company (2023)
- 5.3. Market Map

6. ASIA PACIFIC LOW-CARBON ALUMINUM MARKET OUTLOOK

- 6.1. Market Size & Forecast
 - 6.1.1. By Value
- 6.2. Market Share & Forecast
 - 6.2.1. By Product
 - 6.2.2. By End User
 - 6.2.3. By Country
- 6.3. Asia Pacific: Country Analysis
 - 6.3.1. China Low-Carbon Aluminum Market Outlook
 - 6.3.1.1. Market Size & Forecast
 - 6.3.1.1.1. By Value
 - 6.3.1.2. Market Share & Forecast
 - 6.3.1.2.1. By Product
 - 6.3.1.2.2. By End User
 - 6.3.2. India Low-Carbon Aluminum Market Outlook
 - 6.3.2.1. Market Size & Forecast
 - 6.3.2.1.1. By Value
 - 6.3.2.2. Market Share & Forecast
 - 6.3.2.2.1. By Product
 - 6.3.2.2.2. By End User
 - 6.3.3. Australia Low-Carbon Aluminum Market Outlook
 - 6.3.3.1. Market Size & Forecast
 - 6.3.3.1.1. By Value
 - 6.3.3.2. Market Share & Forecast
 - 6.3.3.2.1. By Product
 - 6.3.3.2.2. By End User
 - 6.3.4. Japan Low-Carbon Aluminum Market Outlook
 - 6.3.4.1. Market Size & Forecast
 - 6.3.4.1.1. By Value
 - 6.3.4.2. Market Share & Forecast
 - 6.3.4.2.1. By Product
 - 6.3.4.2.2. By End User
 - 6.3.5. South Korea Low-Carbon Aluminum Market Outlook
 - 6.3.5.1. Market Size & Forecast
 - 6.3.5.1.1. By Value

- 6.3.5.2. Market Share & Forecast
 - 6.3.5.2.1. By Product
 - 6.3.5.2.2. By End User

7. EUROPE LOW-CARBON ALUMINUM MARKET OUTLOOK

- 7.1. Market Size & Forecast
 - 7.1.1. By Value
- 7.2. Market Share & Forecast
 - 7.2.1. By Product
 - 7.2.2. By End User
 - 7.2.3. By Country
- 7.3. Europe: Country Analysis
 - 7.3.1. France Low-Carbon Aluminum Market Outlook
 - 7.3.1.1. Market Size & Forecast
 - 7.3.1.1.1. By Value
 - 7.3.1.2. Market Share & Forecast
 - 7.3.1.2.1. By Product
 - 7.3.1.2.2. By End User
 - 7.3.2. Germany Low-Carbon Aluminum Market Outlook
 - 7.3.2.1. Market Size & Forecast
 - 7.3.2.1.1. By Value
 - 7.3.2.2. Market Share & Forecast
 - 7.3.2.2.1. By Product
 - 7.3.2.2.2. By End User
 - 7.3.3. Spain Low-Carbon Aluminum Market Outlook
 - 7.3.3.1. Market Size & Forecast
 - 7.3.3.1.1. By Value
 - 7.3.3.2. Market Share & Forecast
 - 7.3.3.2.1. By Product
 - 7.3.3.2.2. By End User
 - 7.3.4. Italy Low-Carbon Aluminum Market Outlook
 - 7.3.4.1. Market Size & Forecast
 - 7.3.4.1.1. By Value
 - 7.3.4.2. Market Share & Forecast
 - 7.3.4.2.1. By Product
 - 7.3.4.2.2. By End User
 - 7.3.5. United Kingdom Low-Carbon Aluminum Market Outlook
 - 7.3.5.1. Market Size & Forecast

- 7.3.5.1.1. By Value
- 7.3.5.2. Market Share & Forecast
 - 7.3.5.2.1. By Product
 - 7.3.5.2.2. By End User

8. NORTH AMERICA LOW-CARBON ALUMINUM MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Product
 - 8.2.2. By End User
 - 8.2.3. By Country
- 8.3. North America: Country Analysis
 - 8.3.1. United States Low-Carbon Aluminum Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Product
 - 8.3.1.2.2. By End User
 - 8.3.2. Mexico Low-Carbon Aluminum Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Product
 - 8.3.2.2.2. By End User
 - 8.3.3. Canada Low-Carbon Aluminum Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Product
 - 8.3.3.2.2. By End User

9. SOUTH AMERICA LOW-CARBON ALUMINUM MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast
 - 9.2.1. By Product

- 9.2.2. By End User
- 9.2.3. By Country
- 9.3. South America: Country Analysis
 - 9.3.1. Brazil Low-Carbon Aluminum Market Outlook
 - 9.3.1.1. Market Size & Forecast
 - 9.3.1.1.1. By Value
 - 9.3.1.2. Market Share & Forecast
 - 9.3.1.2.1. By Product
 - 9.3.1.2.2. By End User
 - 9.3.2. Argentina Low-Carbon Aluminum Market Outlook
 - 9.3.2.1. Market Size & Forecast
 - 9.3.2.1.1. By Value
 - 9.3.2.2. Market Share & Forecast
 - 9.3.2.2.1. By Product
 - 9.3.2.2.2. By End User
 - 9.3.3. Colombia Low-Carbon Aluminum Market Outlook
 - 9.3.3.1. Market Size & Forecast
 - 9.3.3.1.1. By Value
 - 9.3.3.2. Market Share & Forecast
 - 9.3.3.2.1. By Product
 - 9.3.3.2.2. By End User

10. MIDDLE EAST AND AFRICA LOW-CARBON ALUMINUM MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value
- 10.2. Market Share & Forecast
 - 10.2.1. By Product
 - 10.2.2. By End User
 - 10.2.3. By Country
- 10.3. MEA: Country Analysis
 - 10.3.1. South Africa Low-Carbon Aluminum Market Outlook
 - 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
 - 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Product
 - 10.3.1.2.2. By End User
 - 10.3.2. Saudi Arabia Low-Carbon Aluminum Market Outlook
 - 10.3.2.1. Market Size & Forecast

- 10.3.2.1.1. By Value
- 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Product
 - 10.3.2.2.2. By End User
- 10.3.3. UAE Low-Carbon Aluminum Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Product
 - 10.3.3.2.2. By End User

11. MARKET DYNAMICS

- 11.1. Drivers
- 11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

- 12.1. Recent Developments
- 12.2. Product Launches
- 12.3. Mergers & Acquisitions

13. GLOBAL LOW-CARBON ALUMINUM MARKET: SWOT ANALYSIS

14. PORTER'S FIVE FORCES ANALYSIS

- 14.1. Competition in the Industry
- 14.2. Potential of New Entrants
- 14.3. Power of Suppliers
- 14.4. Power of Customers
- 14.5. Threat of Substitute Product

15. PESTLE ANALYSIS

16. COMPETITIVE LANDSCAPE

- 16.1. EN+ Holding Limited
 - 16.1.1. Business Overview
 - 16.1.2. Company Snapshot

- 16.1.3. Products & Services
- 16.1.4. Financials (As Reported)
- 16.1.5. Recent Developments
- 16.2. Century Aluminum Company
- 16.3. Emirates Global Aluminium PJSC
- 16.4. Norsk Hydro ASA
- 16.5. Alcoa Corporation
- 16.6. China Hongqiao Group Limited
- 16.7. Capral Limited
- 16.8. Constellium SE
- 16.9. Reynaers Aluminium Pvt. Ltd.
- 16.10. Granges AB

17. STRATEGIC RECOMMENDATIONS

18. ABOUT US & DISCLAIMER

I would like to order

Product name: Low-Carbon Aluminum Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Flat-Rolled, Castings, Extrusion, Forgings, Rod and Bar, Others), By End User (Transportation, Building and Construction, Electrical Industry, Consumer Goods, Foil and Packaging, Machinery and Equipment, Others), By Region and Competition, 2019-2029F

Product link: <https://marketpublishers.com/r/L48F31706A85EN.html>

Price: US\$ 4,900.00 (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/L48F31706A85EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970