

# Carbon Foam - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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## Abstracts

The Carbon Foam Market size is estimated at USD 23.88 million in 2024, and is expected to reach USD 39.76 million by 2029, growing at a CAGR of 10.73% during the forecast period (2024-2029).

The COVID-19 pandemic significantly impacted the market in 2020 owing to supply chain and market disruptions. During the pandemic, many factories responsible for carbon foam production were shut down. However, the market is growing rapidly and has reached pre-pandemic levels.

### Key Highlights

Over the short term, the increasing usage of carbon foam in the aerospace and defense industry, environmental concerns, and a push for sustainable solutions are key factors expected to drive market demand.

The high cost of the production process of carbon foam hinders market growth.

Nevertheless, the increasing focus on developing low-cost carbon foam will likely create opportunities for the market in the coming years.

North America is expected to dominate the market and witness the highest CAGR during the forecast period.

### Carbon Foam Market Trends

The Usage of Carbon Foam is Increasing in the Aerospace and Defense Industry

Carbon foam can be used to manufacture engineering material for various aerospace and defense applications, including aerospace tooling, fireproof structural products, energy-absorbing structures, blast protection systems, and hot structures. It is widely used to insulate aircraft and rockets.

It can be used in thermal protection systems and structural panels for EMI shielding and radar-absorbing applications. It can also be used for stealth technology, an essential aspect of the upcoming fifth-generation aircraft.

Due to its lightweight nature, strength, and excellent thermal properties, it is also used in rocket nozzle systems, even in harsh environments. Solid rocket motors generate thrust by burning a solid propellant to generate hot gases, which are exhausted through a nozzle.

Graphitic carbon foam can protect against blast energy, directed energy weapons, and electromagnetic pulse threats.

In February 2022, the China Aerodynamics Research and Development Centre tested carbon foam-based coatings on hypersonic weapons to enhance their performance. It was seen that carbon foam-based coatings could reduce the impact of shock waves by more than 20% and dramatically improve aerodynamic stability. It also mentioned that carbon foam has great application potential as a coating material for future hypersonic flight.

According to the Boeing Commercial Outlook 2023-2042, the global demand for new commercial jets is expected to reach 42,595 units, valued at USD 8 trillion. Due to such huge expected deliveries, the demand for carbon foam is expected to rise globally during the forecast period.

According to BDLI - German Aerospace Industries Association, the revenue of the German aerospace industry reached EUR 35.42 billion (USD 37.58 billion) in 2023, an increase from EUR 30.8 billion (USD 33.29 billion) in 2022.

As per the Stockholm International Peace Research Institute, military spending in Germany was valued at USD 66.8 billion in 2023, rising for the second consecutive year in a row.

According to the Stockholm International Peace Research Institute, China, the second

largest military contributor in the world, spent an estimated USD 296.7 billion on the armed forces in 2023, a 6.0% increase from 2022. This marked the 29th year in a row that Chinese military spending increased. China accounted for 50% of the total military spending in the Asia-Pacific region.

All the factors above are expected to boost the demand for carbon foam during the forecast period.

### The United States is Expected to Dominate North America

North America is expected to dominate the market. The United States is one of the region's largest and most powerful economies.

The United States is the second-largest market for electric vehicles after China. According to the US Energy Information Administration, hybrid, plug-in hybrid, and all-electric vehicle sales in the country reached their highest LDV market share of 17.9% in the second half of 2023. During 2023, manufacturers added 20 new all-electric vehicle models (mainly in the second half), bringing the total to 70 BEV models out of 459 total LDV models at the end of 2023.

According to the IEA, in the United States, the federal aim is for electric vehicles (EVs) to make up 50% of new passenger cars and light trucks sold by 2030. As per the International Council on Clean Transportation, in 2020, the government of California announced an executive order to have all new cars and passenger trucks sold in California be zero-emission vehicles, including BEV and PHEV, by 2035.

According to the General Aviation Manufacturers Association (GAMA), for the first time in decades, industry deliveries topped 4,000 units in 2023. Furthermore, in 2023, airplane billings increased to USD 500 million. Such advancements are expected to increase market demand across multiple applications in the aerospace industry.

As per the Stockholm International Peace Research Institute, military spending in the United States reached USD 916 billion in 2023, which was an increase of 2.3% compared to the previous year.

In the construction industry, carbon foam can be used for insulation in buildings, providing energy efficiency and reducing heating and cooling costs. Its structural

strength makes it suitable for applications in panels, roofing, and other components where a balance of strength and insulation is desired.

According to the US Census Bureau, construction spending increased annually by 13.9% in December 2023. For all of 2023, construction spending grew 7.0% year on year.

All of the above factors will likely have a significant effect on the demand for carbon foam in North America in the future.

### Carbon Foam Industry Overview

The carbon foam market is consolidated in nature, where the top players hold the majority share of the market. Some of the major players in the market include CONSOL Energy Inc., Entegris, Koppers Inc., Ultramet, and ERG Aerospace.

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## Contents

### **1 INTRODUCTION**

- 1.1 Study Assumptions
- 1.2 Scope of the Study

### **2 RESEARCH METHODOLOGY**

### **3 EXECUTIVE SUMMARY**

### **4 MARKET DYNAMICS**

- 4.1 Drivers
  - 4.1.1 Increasing Usage in the Aerospace and Defense Industry
  - 4.1.2 Environmental Concerns and a Push for Sustainable Solutions
  - 4.1.3 Others
- 4.2 Restraints
  - 4.2.1 The High Cost of the Production Process of Carbon Foam
  - 4.2.2 Others
- 4.3 Industry Value Chain Analysis
- 4.4 Porter's Five Forces Analysis
  - 4.4.1 Bargaining Power of Suppliers
  - 4.4.2 Bargaining Power of Buyers
  - 4.4.3 Threat of New Entrants
  - 4.4.4 Threat of Substitute Products and Services
  - 4.4.5 Degree of Competition

### **5 MARKET SEGMENTATION (MARKET SIZE IN VALUE)**

- 5.1 Type
  - 5.1.1 Graphitic
  - 5.1.2 Non-graphitic
- 5.2 End-user Industry
  - 5.2.1 Aerospace and Defense
  - 5.2.2 Building and Construction
  - 5.2.3 Automotive
  - 5.2.4 Electrical
  - 5.2.5 Industrial

## 5.2.6 Other End-user Industries

### 5.3 Geography

#### 5.3.1 Asia-Pacific

##### 5.3.1.1 China

##### 5.3.1.2 India

##### 5.3.1.3 Japan

##### 5.3.1.4 South Korea

##### 5.3.1.5 Malaysia

##### 5.3.1.6 Thailand

##### 5.3.1.7 Indonesia

##### 5.3.1.8 Vietnam

##### 5.3.1.9 Rest of Asia-Pacific

#### 5.3.2 North America

##### 5.3.2.1 United States

##### 5.3.2.2 Canada

##### 5.3.2.3 Mexico

#### 5.3.3 Europe

##### 5.3.3.1 Germany

##### 5.3.3.2 United Kingdom

##### 5.3.3.3 France

##### 5.3.3.4 Italy

##### 5.3.3.5 Spain

##### 5.3.3.6 Nordic

##### 5.3.3.7 Turkey

##### 5.3.3.8 Russia

##### 5.3.3.9 Rest of Europe

#### 5.3.4 South America

##### 5.3.4.1 Brazil

##### 5.3.4.2 Argentina

##### 5.3.4.3 Rest of South America

#### 5.3.5 Middle East and Africa

##### 5.3.5.1 Saudi Arabia

##### 5.3.5.2 South Africa

##### 5.3.5.3 Rest of Middle East and Africa

## 6 COMPETITIVE LANDSCAPE

### 6.1 Mergers and Acquisitions, Joint Ventures, Collaborations, and Agreements

### 6.2 Market Ranking Analysis

### 6.3 Strategies Adopted by Leading Players

#### 6.4 Company Profiles

6.4.1 American Elements

6.4.2 Carbon-Core Corporation

6.4.3 CONSOL Energy Inc.

6.4.4 ERG Aerospace

6.4.5 Firefly International Energy

6.4.6 Koppers Inc.

6.4.7 Entegris Inc.

6.4.8 Ultramet

6.4.9 Xiamen Zopin New Material Limited

## **7 MARKET OPPORTUNITIES AND FUTURE TRENDS**

### 7.1 Development of Low-cost Carbon Foam

### 7.2 Other Opportunities

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