

Aviation Carbon Fiber Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 – 2034

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Abstracts

The Global Aviation Carbon Fiber Market reached USD 2.2 billion in 2024 and is projected to grow at a CAGR of 9.8% from 2025 to 2034. This growth is fueled by increasing emphasis on sustainability and the adoption of lightweight materials to reduce emissions and enhance aircraft efficiency. Industry regulations aimed at lowering carbon footprints, such as international offsetting programs, are driving the demand for carbon fiber in aerospace. Innovations in bio-based composites and recycling methods further open new opportunities for growth. However, challenges like high production costs and regulatory complexities remain hurdles, necessitating continuous industry collaboration and technological advancements.

The market is categorized into PAN-based and pitch-based carbon fiber, with PAN-based carbon fiber holding the largest market share at 78.4% in 2024. Known for its superior strength-to-weight ratio, durability, and resistance to extreme conditions, PAN-based carbon fiber is a cornerstone material in aviation. Its production involves advanced processes that create lightweight yet highly robust fibers, ideal for constructing critical aircraft components such as wings and fuselages. These properties contribute significantly to improving fuel efficiency and minimizing environmental impacts.

The aviation carbon fiber market is further segmented into continuous, long, and short fibers. Continuous fibers are experiencing the fastest growth, with a forecasted CAGR of 10.3% during 2025-2034. Their ability to deliver exceptional strength and structural integrity makes them indispensable for aerospace applications. Continuous fibers are used in woven fabrics and advanced composites, providing enhanced performance for load-bearing aircraft parts and other high-stress components. This application boosts

their importance in achieving durable and efficient aircraft designs.

North America aviation carbon fiber market generated USD 1.7 billion by 2034. The dominance is driven by a robust aerospace sector and significant advancements in carbon fiber technologies. Demand for lightweight, fuel-efficient aircraft continues to rise, further supported by innovations in material development. North America's leadership in adopting advanced manufacturing techniques ensures its stronghold in the aviation carbon fiber industry.

Contents

Report Content

CHAPTER 1 METHODOLOGY & SCOPE

- 1.1 Market scope & definitions
- 1.2 Base estimates & calculations
- 1.3 Forecast calculations
- 1.4 Data sources
 - 1.4.1 Primary
 - 1.4.2 Secondary
 - 1.4.2.1 Paid sources
 - 1.4.2.2 Public sources

CHAPTER 2 EXECUTIVE SUMMARY

- 2.1 Industry synopsis, 2021-2034

CHAPTER 3 INDUSTRY INSIGHTS

- 3.1 Industry ecosystem analysis
 - 3.1.1 Factor affecting the value chain
 - 3.1.2 Profit margin analysis
 - 3.1.3 Disruptions
 - 3.1.4 Future outlook
 - 3.1.5 Manufacturers
 - 3.1.6 Distributors
- 3.2 Supplier landscape
- 3.3 Profit margin analysis
- 3.4 Key news & initiatives
- 3.5 Regulatory landscape
- 3.6 Impact forces
 - 3.6.1 Growth drivers
 - 3.6.1.1 Increasing demand for lightweight, fuel-efficient aircraft components
 - 3.6.1.2 Growing adoption of carbon fiber in aerospace manufacturing processes
 - 3.6.1.3 Rising focus on sustainable and eco-friendly aviation technologies
 - 3.6.1.4 Advancements in carbon fiber production techniques and cost reduction
 - 3.6.1.5 Expanding use of carbon fiber in next-gen commercial aircraft

- 3.6.2 Industry pitfalls & challenges
 - 3.6.2.1 High production costs limiting widespread carbon fiber adoption
 - 3.6.2.2 Challenges related to carbon fiber recycling and sustainability
- 3.7 Growth potential analysis
- 3.8 Porter's analysis
- 3.9 PESTEL analysis

CHAPTER 4 COMPETITIVE LANDSCAPE, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
- 4.3 Competitive positioning matrix
- 4.4 Strategic outlook matrix

CHAPTER 5 MARKET ESTIMATES & FORECAST, BY RAW MATERIAL, 2021-2034 (USD MILLION)

- 5.1 Key trends
- 5.2 PAN-based carbon fiber
- 5.3 Pitch-based carbon fiber

CHAPTER 6 MARKET ESTIMATES & FORECAST, BY TYPE, 2021-2034 (USD MILLION)

- 6.1 Key trends
- 6.2 Continuous
- 6.3 Long
- 6.4 Short

CHAPTER 7 MARKET ESTIMATES & FORECAST, BY APPLICATION, 2021-2034 (USD MILLION)

- 7.1 Key trends
- 7.2 Commercial fixed-wing aircraft
- 7.3 Military fixed-wing aircraft
- 7.4 Rotorcraft

CHAPTER 8 MARKET ESTIMATES & FORECAST, BY REGION, 2021-2034 (USD MILLION)

8.1 Key trends

8.2 North America

8.2.1 U.S.

8.2.2 Canada

8.3 Europe

8.3.1 UK

8.3.2 Germany

8.3.3 France

8.3.4 Italy

8.3.5 Spain

8.3.6 Russia

8.4 Asia Pacific

8.4.1 China

8.4.2 India

8.4.3 Japan

8.4.4 South Korea

8.4.5 Australia

8.5 Latin America

8.5.1 Brazil

8.5.2 Mexico

8.6 MEA

8.6.1 South Africa

8.6.2 Saudi Arabia

8.6.3 UAE

CHAPTER 9 COMPANY PROFILES

9.1 Bally Ribbon Mills

9.2 DuPont de Nemours, Inc.

9.3 Solvay S.A.

9.4 Hexcel Corporation

9.5 SGL Carbon SE

9.6 Toray Industries, Inc.

9.7 TEIJIN LIMITED

9.8 BGF Industries Inc.

9.9 Mitsubishi Chemical Group

9.10 DowAksa

9.11 HYOSUNG

- 9.12 Chomarat Group
- 9.13 Aernnova Aerospace
- 9.14 Zoltek Companies Incorporated
- 9.15 Park Aerospace Corp

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