

Aviation Carbon Fiber Market Size Expected to Reach \$4.4 Billion by 2031

Aviation carbon fiber market was valued at \$1.5 billion in 2021, and is estimated to reach \$4.4 billion by 2031, growing at a CAGR of 11.4% from 2022 to 2031.

WILMINGTON, DE, UNITED STATES, October 13, 2025 /EINPresswire.com/ -- By raw material, the PAN-based carbon fiber segment dominated the global market in 2021, in terms of revenue, and is expected to lead the market throughout the forecast period. By type, the continuous carbon fiber segment accounted for a major share in 2021. Based on end use, the military segment is anticipated to witness lucrative growth over the forecast timeframe. At present, North America is the highest revenue contributor, followed by Europe.

Asia-Pacific is expected to experience significant growth during the forecast period. China, Japan, and India are expected to remain lucrative markets in terms of increase in investment and R&D by domestic and overseas players. Increasing number of deliveries of commercial as well as general aviation aircrafts, owing to the significant growth in air traffic is a key factor driving the growth of the market in Asia-Pacific region. The region is experiencing growth in global transport with significant increase in passenger transport and air cargo market.

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In November 2021, Boeing, an American aircraft manufacturer, predicted that air travel within the Asia-Pacific region will account for almost half of the world's air travel by 2040, with 17,645 new aircraft worth \$3.1 trillion over 20 years. The increase in demand for aircrafts from commercial, military, and general aviation segments is expected to drive the growth for [aviation carbon fiber market](#) in the region.

The factors such as rapidly growing & booming aviation industry, expansion of aircraft fleets by airline operators and rising expenditure by government in the aviation sector are the primary factors expected to propel the growth of aviation carbon fiber market in China. China is expected to invest more than \$80 billion in aviation projects to keep up with the increasing demand for air travel. Also, over the next 20 years, Chinese carriers are expected to expand their fleets by more than 1,500 aircraft, a number that represents 20% of the demand worldwide, which is expected to offer numerous growth opportunities for carbon fiber market during the forecast period.

On the basis of raw material, the global aviation carbon fiber market has been segmented into PAN-based carbon fiber and Pitch-based carbon fiber. The PAN-based carbon fiber accounted for a significant market share in 2021. PAN-based carbon fibers are made from a synthetic fiber called polyacrylonitrile (PAN). The manufacturing of PAN-based carbon fibers includes spinning of the PAN co-polymer to form the fibers. The constant advancement in the technology to develop PAN-based carbon fibers to manufacture aircraft bodies and parts is expected to drive the growth of the market. For instance, in December 2019, Solvay and SGL Carbon announced a collaboration to develop highly-competitive advanced carbon fiber composites for primary structures in the aerospace industry. Under this agreement, the companies aim to provide the market with the first composite materials based on large-tow intermediate modulus (IM) carbon fiber.

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There has been rise in use of carbon fiber in military aviation to provide significant weight and cost reductions. Moreover, there is an increase in the use of carbon fiber to produce military aircrafts as carbon fiber reduces around 50% of the structural weight of military aircrafts. Military aircrafts require lightweight structures to provide increased payload, improved agility, short take-off, long-range missions, and high maneuverable capabilities. The weight savings allow for a wider payload range, smaller subsystems for a given level of performance, and better fuel efficiency.

The rise in the application of carbon fiber to manufacture secondary structures, control surfaces, and wing & primary fuselage structures for military aircrafts is expected to drive the growth of the market. For instance, Eurofighter Typhoon is one of the most advanced fighter jets developed by a consortium of aerospace and defense companies from countries such as UK, Germany, Italy, and Spain. Its 40% of the structural weight is carbon fiber reinforced composite material. Moreover, the American fifth-generation fighter F/A-22 uses composite materials in fuselage, wings, and tail.

COVID-19 Impact Analysis

The outbreak of COVID-19 reduced air transport and negatively impacted the aviation industry, which significantly decreased the demand for carbon fiber. The COVID-19 pandemic severely impacted global demand for carbon fiber and its composites due to parked commercial aircrafts, domestic & international travel disruptions, and restrictions on travel activities. However, post-pandemic, strategies are being developed by governments to increase the production of locally produced carbon fiber material, supporting the growth of the market. For instance, in 2021, Hindustan Aeronautics Limited signed a memorandum of understanding with Mishra Dhatu Nigam Limited to develop and produce composite raw materials such as carbon fiber.

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KEY FINDINGS OF THE STUDY

By raw material, the PAN-based carbon fiber segment is anticipated to exhibit significant growth in the near future.

By type, the continuous segment is anticipated to exhibit significant growth in the near future.

By end use, the military segment is anticipated to exhibit significant growth in the near future.

By region, Asia-Pacific is anticipated to register the highest CAGR during the forecast period.

Key players operating in the global aviation carbon fiber market include Mitsubishi Chemical Group Corporation, Nippon Steel Corporation, SGL Carbon, Teijin Limited, Toray Industries, Inc., Hexcel Corporation, Solvay, Hyosung, OJSC SvetlogorskKhimvolokno, and DowAksa.

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