Aerospace Composites Market worth $52.1 billion by 2029

The aerospace composites market market is projected to grow from USD 29.1 billion in 2024 to USD 52.1 billion by 2029, at a CAGR of 12.3% during the forecast period. This report provides an in-depth analysis of the aerospace composites market size, share, growth trends, regional insights, and industry developments based on the latest industry reports. Aerospace composites are a subset of composite materials used in aircraft and spacecraft applications. These composites are formed by combining at least two different materials, such as carbon fiber, glass fiber, or aramid fiber, with epoxy, creating a new material with properties that are a blend of the component materials. Aerospace composites are distinguished by their high strength and quality standards, as well as the rigorous procedures involved in designing, manufacturing, and testing them. These materials are crucial in aerospace engineering due to their lightweight, strong, and durable properties, making them ideal for various aerospace components like engine blades, brackets, wings, and fuselage sections.

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The growth of the aerospace composites market is propelled by a range of factors, including the pursuit of fuel efficiency through reduced aircraft weight, enhanced performance via superior strength-to-weight ratios, and decreased maintenance needs due to resistance to environmental degradation. Regulatory pressures for lower emissions and advancements in material science and manufacturing technology further drive the adoption of composites. The flexibility in design that composites offer facilitates aerodynamically superior aircraft structures, catering to rising global air traffic and robust military demands. Additionally, the industry's shift towards sustainability, seeking materials that not only perform efficiently but also have a reduced environmental impact throughout their lifecycle, significantly influences the expansion of composite applications in aerospace.

Glass fiber type segment is expected to grow with third highest CAGR in aerospace composites market during the forecasted period.

The aerospace composites market is segmented based on the fiber types into glass fiber, carbon fiber, ceramic fiber and others. Glass fiber composites is significant segment of the aerospace composites market, with a growing demand due to their superior physical properties and higher stiffness-to-density ratio. Glass fiber composites are used in a variety of aerospace applications, including commercial and military aircraft, rotorcraft. cost-effectiveness, desirable mechanical properties, and

lightweight nature, making glass fiber a valuable material for various aerospace components. Glass fiber composites offer a cheaper alternative to carbon fiber without compromising much on strength, durability, and weight reduction, which are crucial for enhancing fuel efficiency and meeting environmental sustainability goals. This factors are expected to boost growth of glass fiber composites in aerospace composites.

Ceramic matrix segment to be the fastest-growing segment in the global aerospace composites market in terms of value

The ceramic matrix segment is projected to register the highest CAGR, in terms of value, during a forecast period. The adoption of ceramic matrix composites is driven by the increasing demand for more efficient, high-performing aircraft and the ongoing pursuit of advancements in aerospace technology that meet stringent environmental and performance regulations. As such, ceramic matrix composites are becoming increasingly integral to the design and manufacture of next-generation aerospace components, pushing the boundaries of what's possible in high-temperature and high-stress applications in the aerospace sector.

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Resin transfer molding manufacturing process is expected to have second largest share during forcasting period, both in terms of value and volume during the forecast period

Resin transfer molding manufacturing process is expected to have second largest share during forcasting period of the global aerospace composites market. The key advantage of resin transfer molding in aerospace applications is its ability to produce complex molded parts with high fiber volumes and consistent quality. The process allows for precise control over fiber placement and the resin content, leading to parts that are strong, lightweight, and have excellent surface finish on both sides. This level of control and quality is crucial for aerospace components which must withstand extreme operational conditions while maintaining structural integrity. Resin Transfer Molding has become a preferred method in the aerospace composites market due to its ability to produce structurally complex and reliable components that meet the stringent demands of the aerospace industry.

Military aircraft to be the third fastest-growing aircraft type segment in the global aerospace composites market in terms of value and volume

aerospace composites in the military aircraft segment gained significant attention driven by the demand for aircraft that are lighter, more durable, and capable of higher performance under extreme conditions. Composites, including carbon fiber and

ceramic matrix composites, offer critical advantages such as reduced weight, which enhances fuel efficiency and flight range, and improved strength and heat resistance, essential for modern high-speed military aircraft. These materials also provide reduced radar signatures, which is crucial for stealth capabilities. The ongoing technological advancements in composite materials and manufacturing processes, such as automated lay-up and resin transfer molding, further bolster their adoption. Additionally, the growing focus on modernizing and expanding military fleets worldwide presents substantial opportunities for the increased use of composites in developing new aircraft and upgrading existing ones, aligning with global defense strategies and operational requirements.

Asia Pacific region is expected to registered third-highest CAGR both in terms of value and volume during forecasted period

The aerospace composites market has been studied in North America, Europe, Asia Pacific, Latin America and Middle East and Africa.

The Asia Pacific aerospace composites market is experiencing explosive growth, fueled by a potent mix of factors. Soaring demand from industries like aerospace is at the forefront, with China leading the charge. China, the world's one of the largest aerospace composites producer and consumer, is driving the market with its booming domestic aircraft production.

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This insatiable demand for lightweight and fuel-efficient materials is propelling the region's aerospace composites market to new heights. Countries like Japan and South Korea, with their established aerospace and defence industries, are also contributing significantly to the regional market growth. Their focus on technological advancements and sustainability goals aligns perfectly with the advantages of aerospace composites, ensuring continued demand in the years to come.

Aerospace Composites Companies

Prominent companies include Solvay (Belgium), Toray Industries, Inc. (Japan), Mitsubishi Chemical Group Corporation (Japan), Hexcel Corporation (US), Teijin Limited (Japan), SGL Carbon (Germany), Spirit AeroSystems (US), Materion Corporation (US), Lee Aerospace (US), General Dynamics Corporation (US), Absolute Composites (India), FDC Composites Inc. (Canada), Avior Produits Intégrés Inc. (Canada), Collins Aerospace (US), Aernnova Aerospace S.A (Spain) among others.

Solvay (Belgium)

Solvay offers high-quality aerospace composite materials that comply with European and international standards. The company possesses a strong product portfolio in the aerospace composites market. It develops innovative products like carbon fiber tapes to maintain its competitive edge. The strong product portfolio has helped the company maintain its competitive edge in the market. It has grown gradually by anticipating market trends, delivering quality materials on time, providing excellent technical help, and various proprietary products to meet the changing needs of its customers. Solvay specialty chemicals lead manufacturing chemical intermediates through scale and technology to develop applications and technologies to reduce costs. The company efficiently provides aerospace composite materials, giving it a strong foothold in the market.
The company has focused on the adoption of organic and inorganic strategies to cement its position as the market leader in the aerospace composites market. This includes the various product launches and developments and acquisitions, which have been supported by several contracts, collaborations, and partnerships with businesses from across the world.

Toray Industries, Inc. (Japan)

Toray Industries, Inc. is a leading supplier to the aerospace industry, providing advanced thermoset and thermoplastic composite materials to produce lightweight general aviation, military, and unmanned aircraft. It is a leading supplier of composite materials to the satellite, space exploration, and launch industries. The company's products are widely used in urban air mobility, defense, commercial, and industrial sectors. The company provides aerospace composite materials through its subsidiary, Toray Advanced Composites. Toray Industries Inc.'s operations are spread across 29 countries, mainly in Asia Pacific, Europe, and North America. The company outlines long term agreement as one of the key practices for growing its aerospace composites market business.

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Hexcel Corporation (US)

Hexcel Corporation is a key player in the aerospace composites business, specializing in providing carbon fiber composites to major aircraft manufacturers like Boeing and Airbus for their range of jets. Approximately half of Hexcel's revenue comes from supplying these composite parts to the aerospace industry, with a significant focus on the defense sector as well. The company's expertise in aerospace composites extends to commercial and military fixed-wing aircraft, helicopters, business jets, UAVs, and spacecraft, showcasing a strong track record of performance in the aerospace and

defense contracts. Hexcel's composite structures are known for being lightweight, high-strength, resistant to rust and corrosion, and capable of being molded into complex shapes, offering enhanced toughness and strength for extended durability. Additionally, Hexcel's joint venture in Malaysia, Aerospace Composites Malaysia (ACM), plays a crucial role in producing cost-effective, high-performance composite parts primarily for Boeing programs, utilizing cutting-edge manufacturing technologies and efficiency principles.