

Aviation Adhesive & Sealant Market Report: Trends, Forecast and Competitive Analysis to 2030

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Abstracts

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Aviation Adhesive & Sealant Trends and Forecast

The future of the global aviation adhesive & sealant market looks promising with opportunities in commercial aviation, defense aviation, and general aviation & other markets. The global aviation adhesive & sealant market is expected to reach an estimated \$1.6 billion by 2030 of 5.7% from 2024 to 2030. The major drivers for this market are the increasing demand for unmanned aerial vehicles and the increasing demand for lightweight materials and advanced composites in aircraft design.

Lucintel forecasts that, within the application category, structural applications are expected to witness the highest growth over the forecast period due to critical bonding requirements for aircraft assembly and safety.

Within the end-use category, commercial aviation is expected to witness the highest growth due to strict safety regulations and the prioritization of passenger safety.

In terms of regions, APAC is expected to witness the highest growth over the forecast period due to the large-scale repair and maintenance work of aircraft in the region.

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Emerging Trends in the Aviation Adhesive & Sealant Market

There are many emerging trends in the aircraft adhesive and sealant market. These trends reflect developments in technology, regulatory requirements, and evolving consumer demands for sustainable, high-performance solutions.

Sustainability Initiatives: There has been a shift toward greener adhesives through bio-based and low-VOC formulations. Regulatory pressure, along with consumer demand for more environmentally friendly products, is driving this push for sustainability. The aviation industry has also taken steps to reduce its environmental footprint, aiming for a more sustainable future.

Advanced Materials: Adhesives are becoming lightweight yet high-strength. The focus on performance and fuel efficiency is motivating aircraft manufacturers to meet higher demands for material strength and resistance to extreme service conditions. Innovations in composite materials are also prompting changes in adhesive formulations.

Digital Manufacturing Integration: Digital manufacturing is incorporating technologies that transform the production of adhesives and sealants. This integration helps optimize efficiency and consistency through data analytics, allowing manufacturers to respond to market demand in ways that enhance product quality.

Increased R&D Expenditure: Companies are investing more in research and development to meet the demand for innovative solutions specific to aviation applications. With a greater emphasis on R&D, manufacturers are collaborating closely with aerospace companies to achieve technological improvements in adhesives.

Global Supply Chain Optimization: The aviation industry is remodeling its supply chain to enhance resilience and efficiency. This shift involves local sourcing and strategic partnerships to minimize risks, ensuring a consistent supply of high-quality adhesives and sealants.

The aviation adhesives and sealants market is experiencing significant growth, driven by advancements in technology, increasing demand for lightweight materials, and the

push for more sustainable and efficient aircraft designs. Innovations such as high-performance epoxy and polyurethane formulations, alongside eco-friendly alternatives, are enhancing bonding capabilities while reducing environmental impact. The rise of electric and hybrid aircraft is further stimulating demand for specialized adhesives that can withstand extreme conditions. As regulatory frameworks evolve and manufacturers prioritize safety and performance, the market is expected to expand, reflecting the industry's commitment to innovation and sustainability.

Recent Developments in the Aviation Adhesive & Sealant Market

Among the recent developments observed in the aviation adhesive and sealant market, several significant advancements are reshaping the industry. These developments are based on changing technology and the sustainability of market demand.

Introduction of Eco-Friendly Formulations: Due to severe environmental regulations, many manufacturers have successfully launched adhesive formulations tagged as 'eco-friendly.' These formulations ensure minimal harmful emissions and belong to a category of products promising to save the aviation industry in terms of sustainability goals, appealing to more customers with environmental concerns.

Advances in Bonding Technologies: About bonding technologies, a revolution in aircraft manufacturing has taken place since structural adhesives can now be designed to withstand the most extreme temperatures and pressures. This is said to provide better bonding strength and, hence, an overall improvement in airplane performance and safety.

Growth of 3D Printing Applications: The growth of additive manufacturing is influencing the adhesive market. With new components being created using 3D printing, specialized adhesives are needed to create optimal performance, and manufacturers are developing adhesives specifically for bonding 3D-printed materials, broadening applications in aviation.

Collaboration and Partnerships: Increased collaboration between adhesive manufacturers and aerospace companies is driving innovation, thanks to multiple cooperative endeavors. The development of customized adhesive solutions that meet specific aerospace requirements creates growth within the market as a result of such collaboration.

Automation and Efficiency: Automation increases the efficiency of production processes and reduces associated costs. Automated systems ensure better quality control and consistency; therefore, manufacturers can fulfill the increased demand for high-performance adhesives.

Each of these developments impacts the aviation adhesive and sealant market individually and collectively, inspiring innovation, improving product performance, and encouraging strides toward sustainability.

Strategic Growth Opportunities for Aviation Adhesive & Sealant Market

There are several strategic growth opportunities for stakeholders in the aviation adhesive and sealant market across various applications. These opportunities enable stakeholders to capitalize on emerging trends and consumer demand.

Commercial Aviation: Commercial aviation is one of the most crucial areas for adhesive manufacturers, as the increasing demand for air travel presents a significant opportunity for the industry. With the expansion and modernization of fleets, airlines are making substantial investments in high-performance adhesives for aircraft assembly and maintenance.

Military Aviation: The defense sector is investing heavily in advanced aircraft and technology. Adhesives used in military applications, especially in the maintenance and repair phases, play a vital role in achieving the long-term lifecycle of military aircraft and ensuring the overall safety of aviation equipment.

MRO Services: This is a growing business, as the aviation industry seeks to extend aircraft longevity and ensure safety. There is consistent demand for MRO services, with many applications requiring high-performance adhesives, creating steady demand for specific products.

New Aircraft Programs: New aircraft models require innovative adhesive solutions developed in response to specialized manufacturing processes. Manufacturers have embraced these opportunities to advance adhesives designed for emerging technologies in aircraft.

Sustainability Initiatives: A growing and rapidly expanding focus on sustainability in the aviation industry increases demand for eco-friendly adhesives.

Emphasizing the development of bio-based and low-emission adhesives will help capture market share while supporting the industry's sustainability goals.

The strategic growth of the aviation adhesives and sealants market is fueled by the rising demand for fuel-efficient and lightweight aircraft, alongside advancements in material technology. Key players are increasingly investing in research and development to create high-performance, environmentally friendly products that meet stringent regulatory standards. The expansion of aerospace manufacturing and maintenance activities globally, coupled with the trend toward more complex aircraft designs, further drives the need for specialized adhesives and sealants. As the industry embraces innovation and sustainability, the market is poised for robust growth, positioning itself as a critical component in enhancing aircraft performance and safety.

Aviation Adhesive & Sealant Market Driver and Challenges

The aviation adhesive and sealant market is influenced by various drivers and challenges that shape its landscape. Understanding these factors is essential for stakeholders looking to navigate the complexities of this industry.

The factors responsible for driving the aviation adhesive and sealant market include:

Technological Advancements: Innovations in adhesive formulations and application technologies are driving market growth. Manufacturers are developing advanced products that enhance performance, such as high-strength, lightweight adhesives capable of withstanding harsh conditions.

Regulatory Compliance: Stricter regulations concerning emissions and environmental impact are pushing manufacturers to adopt eco-friendly practices. Companies that comply with these regulations gain a competitive edge and attract environmentally conscious customers.

Growth in Air Travel: The increasing demand for air travel and the expansion of the commercial aviation sector fuel the need for adhesives in aircraft manufacturing and maintenance. This growth leads to a higher demand for innovative adhesive solutions.

Rising Defense Budgets: Increased military spending and modernization initiatives drive demand for specialized adhesives in military aviation. The

defense sector's focus on advanced technology creates opportunities for adhesive manufacturers to provide tailored solutions.

Challenges in the aviation adhesive and sealant market include:

Supply Chain Disruptions: Recent global events have highlighted vulnerabilities in supply chains, causing delays and cost increases. Manufacturers should implement precise measures to reduce risks and ensure consistent supplies.

Competition and Market Saturation: In the aviation adhesive market, competition has intensified as numerous players vie for market share. Companies strive to innovate and focus on quality to maintain their position in the market.

Regulatory Challenges: Safety and environmental regulations can pose significant challenges for manufacturers. Meeting these standards requires substantial investment in resources and expertise, which can be a hurdle for smaller companies.

In conclusion, these drivers and challenges shape the aviation adhesive and sealant market landscape, influencing strategic decisions and long-term planning. Understanding these dynamics is crucial for stakeholders aiming to thrive in this evolving industry.

List of Aviation Adhesive & Sealant Companies

Companies in the market compete on the basis of product quality offered. Major players in this market focus on expanding their manufacturing facilities, R&D investments, infrastructural development, and leverage integration opportunities across the value chain. Through these strategies aviation adhesive & sealant companies cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the aviation adhesive & sealant companies profiled in this report include-

3M

Nordson

Henkel

Hernon Manufacturing

Kohesi Bond

PPG Industries

Permabond

Aviation Adhesive & Sealant by Segment

The study includes a forecast for the global aviation adhesive & sealant by cure type, resin, application, end use, and region.

Aviation Adhesive & Sealant Market by Cure Type [Analysis by Value from 2018 to 2030]:

One-part

Two-part

Anaerobic

Heat-Cure

UV-Cure

Others

Aviation Adhesive & Sealant Market by Resin [Analysis by Value from 2018 to 2030]:

Silicone

Polyurethane

Epoxy

Acrylic

Others

Aviation Adhesive & Sealant Market by Application [Analysis by Value from 2018 to 2030]:

Aerospace & Defense Electronics

Structural

Interior

Others

Aviation Adhesive & Sealant Market by End Use [Analysis by Value from 2018 to 2030]:

Commercial Aviation

Defense Aviation

General Aviation & Others

Aviation Adhesive & Sealant Market by Region [Analysis by Value from 2018 to 2030]:

North America

Europe

Asia Pacific

The Rest of the World

Country Wise Outlook for the Aviation Adhesive & Sealant Market

The growth of the aviation adhesive and sealant market is experiencing a significant shift with the advent of new technology, escalating regulations, and changing consumer preferences. The increasing demand for more efficient and sustainable products prompts manufacturers to innovate with new formulations that not only deliver improved performance but also reduce environmental impact. This trend is also accompanied by a growing need for lightweight material applications, particularly during the aircraft production phase. As a result, users are now demanding adhesives and sealants that ensure exceptional bonding and sealing properties. This has also contributed to a rebound from the pandemic, revitalizing the aerospace industry and leading to higher production rates alongside new and better materials for improved safety and performance. In countries like the United States, China, Germany, India, and Japan, these trends reflect not only domestic market activities but also global evolution, creating a highly dynamic environment for the innovation of aviation adhesives and sealants.

United States: U.S.-based aviation adhesives and sealants have been rapidly advancing within the aerospace manufacturing industry. Market leaders have begun emphasizing the development of high-performance adhesives derived from eco-friendly materials, working towards obtaining FAA qualifications for such products. For example, epoxy- and polyurethane-based adhesives have demonstrated better bonding strength along with superior resistance to environmental conditions. The shift toward additive manufacturing is also influencing the adhesives market, as additively manufactured parts require precise bonding solutions. Moreover, the United States has a strong R&D culture, where partnerships between producers and aerospace companies lead to the creation of some of the most advanced adhesives.

China: China's aviation adhesives and sealants market is also growing rapidly, driven by the country's expanding aerospace sector. Government programs aimed at increasing domestic aircraft manufacturing have generated significant demand for high-performance adhesives and sealants. Chinese producers are focusing on developing products that meet international standards, making them more competitive globally. Innovation in lightweight adhesives is a key focus, given the shift towards more fuel-efficient designs. Collaboration with international companies has facilitated knowledge transfer and technological development, positioning China as a prominent player in the global aviation adhesives market.

Germany: Germany is a leader in the aviation adhesives and sealants market. The country's advanced engineering and innovative manufacturing processes give German producers an edge in the market. Recently, there has been a strong focus on developing more sustainable materials, with many companies investing in bio-based adhesives due to increasing regulatory pressure for environmentally friendly products. Digital technologies also play a significant role in ensuring the consistency and performance of final products through integrated manufacturing processes. German companies are also at the forefront of developing advanced testing methods for adhesives, meeting the stringent safety standards required in the aviation industry. Close collaboration between industry and academia is driving research into next-generation adhesive technologies, further solidifying Germany's market leadership.

India: The Indian aerospace market is booming, and the aviation adhesives and sealants market is gradually expanding. Government initiatives promoting local manufacturing and foreign investment have led to increased demand for high-performance adhesive products. Manufacturers are making rigorous efforts to design customized solutions that meet the needs of both commercial and military aviation. The growth of MRO (Maintenance, Repair, and Overhaul) services in India is creating new opportunities for the use of adhesives. Additionally, collaborations between local firms and international partners are enhancing technology transfer, which drives innovation in product development.

Japan: In Japan, the aviation adhesives and sealants market focuses heavily on innovation and quality. Recent innovations include ultra-lightweight adhesives that support the country's aerospace manufacturers. Nanotechnology has also been incorporated into adhesive formulations to enhance performance attributes like heat and chemical resistance. Sustainability is a priority for Japanese manufacturers, with investments in eco-friendly materials that meet globally accepted environmental standards. Additionally, the market is witnessing significant collaboration between manufacturers and research organizations in the development of next-generation adhesive technologies, positioning Japan as an important player in the future of the aviation adhesives market.

Features of the Global Aviation Adhesive & Sealant Market

Market Size Estimates: Aviation adhesive & sealant market size estimation in terms of value (\$B).

Trend and Forecast Analysis: Market trends (2018 to 2023) and forecast (2024 to 2030) by various segments and regions.

Segmentation Analysis: Aviation adhesive & sealant market size by various segments, such as by cure type, resin, application, end use, and region in terms of value (\$B).

Regional Analysis: Aviation adhesive & sealant market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different cure type, resin, application, end use, and regions for the aviation adhesive & sealant market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the aviation adhesive & sealant market.

Analysis of competitive intensity of the industry based on Porter's Five Forces model.

If you are looking to expand your business in this market or adjacent markets, then contact us. We have done hundreds of strategic consulting projects in market entry, opportunity screening, due diligence, supply chain analysis, M & A, and more.

This report answers following 11 key questions:

Q.1. What are some of the most promising, high-growth opportunities for the aviation adhesive & sealant market by cure type (one-part, two-part, anaerobic, heat-cure, UV-cure, and others), resin (silicone, polyurethane, epoxy, acrylic, and others), application (aerospace & defense electronics, structural, interior, and others), end use (commercial aviation, defense aviation, and general aviation & others), and region (North America, Europe, Asia Pacific, and the Rest of the World)?

Q.2. Which segments will grow at a faster pace and why?

Q.3. Which region will grow at a faster pace and why?

Q.4. What are the key factors affecting market dynamics? What are the key challenges and business risks in this market?

Q.5. What are the business risks and competitive threats in this market?

Q.6. What are the emerging trends in this market and the reasons behind them?

Q.7. What are some of the changing demands of customers in the market?

Q.8. What are the new developments in the market? Which companies are leading these developments?

Q.9. Who are the major players in this market? What strategic initiatives are key players pursuing for business growth?

Q.10. What are some of the competing products in this market and how big of a threat do they pose for loss of market share by material or product substitution?

Q.11. What M&A activity has occurred in the last 5 years and what has its impact been on the industry?

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