Aerospace Adhesives Market By Technology (Waterborne, Solvent borne, Reactive), By Resin Type (Epoxy, Polyurethane, Silicone, Other), By Function (Structural, Non-structural), By End-user (Original Equipment Manufacturer, Maintenance, Repair and Operations): Global Opportunity Analysis and Industry Forecast, 2023-2032

Market Report | 2023-12-01 | 355 pages | Allied Market Research

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Report description:

The aerospace sector is progressively moving toward automation. An important development in aircraft design revolves around the utilization of lightweight materials. This shift is facilitated by improved chemical solutions for bonding and safeguarding composite structures, the creation of novel materials in line with developing standards, and advancements in 3D printing technology. The shift toward lightweight materials in aircraft design, including advanced composites, requires adhesives with precise properties tailored to effectively bond these materials. Moreover, there is a rise in the global airplane demand, which is expected to increase the aircraft production to meet this demand, thereby driving the growth of the aerospace adhesives market. According to the Boeing's Commercial Market Outlook (CMO) report 2023, China is projected to become the largest domestic aviation market globally within the next two decades. The report anticipates that China will contribute to 20% of the global demand for airplanes by 2042. Aviation providers in the country are expected to place orders for over 8,500 new jets by 2042, which is expected to drive the demand for aerospace adhesives. Furthermore, commercial fleet of China is expected to generate demand for $675 billion in aviation services, including maintenance, repair, training, and spare parts.
The report also mentioned that the continued growth in e-commerce and express shipping will drive demand for 190 new freighter deliveries. The demand for new freighter deliveries implies an increase in the production of cargo aircraft, which, in turn, is expected to contribute toward the growth of the aerospace adhesive market. China's expanding commercial fleet is expected to create a significant need for aviation services such as maintenance, repair, training, and spare parts. Aerospace adhesives play a crucial role in maintenance and repair tasks, contributing to the durability and safety of various aircraft components. The rising demand for aviation services is likely to indirectly contribute to an increased requirement for adhesives utilized in these service activities.

According to Airbus's forecast released in July 2023, China is anticipated to require more than 9,440 new passenger and freight planes by 2042. The forecast attributes this demand to the rapid growth in passenger traffic, projecting a 5.2% annual growth rate over the next two decades. Moreover, this demand from China constitutes over 23% of the global requirement, estimated at about 40,850 new aircraft in the next 20 years. With the manufacturing and assembly of aircraft requiring various materials, including aerospace adhesives, the surge in aircraft production can contribute to the growth of the aerospace adhesives market.

In addition, manufacturers are adopting various strategies such as expansion to strengthen their presence and increase their market share. For instance, in June 2023, Henkel initiated the construction of a new manufacturing facility for its Adhesive Technologies business unit in the Yantai Chemical Industry Park in Shandong Province, China. The new plant, named Kunpeng represents an investment of approximately $131 million and is designed to bolster Henkel's production capacity for high-impact adhesive products in China. Such developments are expected to propel the growth of the market in the country during the forecast period.

The adhesive properties, heat resistance, and high compressive strength at a lower weight (compared to aluminum) of epoxy resins make them an ideal material to increase strength and reduce costs associated with air travel. In aircraft production, epoxy is used both to create structural elements and as a structural adhesive. Epoxy aerospace adhesives represent a specialized adhesive formulation tailored for aerospace applications, utilizing epoxy resin-a versatile and high-performance polymer. Widely employed for bonding a variety of materials, including metals, composites, and thermoplastics, epoxy aerospace adhesives establish robust and dependable connections between components. Their capacity to endure temperature extremes, vibrations, and other stresses encountered in aerospace settings makes them highly valued.

Several companies in the aerospace industry are actively engaged in developing and introducing innovative adhesive technologies and solutions. For instance, in June 2021, Solvay introduced innovative aerospace adhesive and surfacing technologies to enhance efficiency for manufacturers in the aerospace industry. The company announced to launch AeroPaste 1006, 1009, and 1100 adhesive pastes, along with BR 179 non-chromate primer. AeroPaste, Solvay's latest generation of epoxy-based structural paste adhesives, offers film-like properties and performance comparable to or exceeding leading film adhesives available. Such developments are expected to drive the demand for epoxy adhesives, thereby contributing toward the growth of the market.

Polyurethane foam is widely used in rigid foam insulation panels, high resiliency flexible foam seating, robust elastomeric tires & wheels, microcellular foam seals and gaskets, electrical potting compounds, automotive suspension bushings, carpet underlay, seals, gaskets, and hard plastic parts electronic mechanisms. Polyurethane aerospace adhesives are a type of adhesive formulation designed for aerospace applications, utilizing polyurethane as a key component. Polyurethane adhesives possess distinctive characteristics that render them well-suited for diverse aerospace bonding requirements. Renowned for their flexibility, durability, and resilience against environmental influences, these adhesives exhibit versatility by effectively bonding an extensive array of materials commonly employed in aerospace applications, including metals, composites, plastics, and elastomers.

This adaptability positions polyurethane adhesives as ideal solutions for various tasks throughout the aircraft manufacturing process. With the aerospace industry increasingly integrating automation into manufacturing workflows, polyurethane adhesives can be specially formulated to align with automated application methods. This formulation enhances the efficiency of assembly lines, ensuring meticulous, uniform bonding for enhanced precision in aircraft manufacturing.

Silicones adhere different materials together, seal joints, coat & encapsulate electronics, and insulate & shield sensitive equipment from extreme temperatures and weather exposure. The versatility of silicone and its high-temperature resistance have made it a reliable choice for decades, and presently it is still one of the most effective materials used in aerospace manufacturing. Silicone aerospace adhesives, specialized formulations rooted in silicone polymers, exhibit distinctive features tailored for aerospace use. Silicone adhesives exhibit properties such as flexibility, resistance to high temperatures, and exceptional weatherability. In addition, these adhesives offer reliable adhesion and sealing, making them well-suited for the rigorous conditions of aerospace environments. Furthermore, their proficiency in high-temperature applications ensure stability and reliability in aerospace components subjected to elevated temperatures during flight. Moreover, these adhesives showcase significant weatherability, effectively resisting moisture, UV exposure, and harsh environmental elements encountered during aerospace operations.?

The aerospace adhesives market is segmented on the basis of technology, resin type, function, end-user, and region. Based on

technology, it is segmented into waterborne, solvent borne, and reactive. On the basis of resin type, it is classified into epoxy, silicone, polyurethane, and others. By function, it is categorized into structural and non-structural. Based on end-user, it is segmented into original equipment manufacturer and maintenance, repair, and operations. By region, the market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Some major companies operating in the market include 3M, Huntsman Corporation, H.B. Fuller, Henkel, Illinois Tool Works Inc., PPG, Cytec Solvay Group, Hexcel Corporation, Bostik (Arkema), Dupont, Permabond, Lord Corporation, Master Bond, Scigrip Adhesives, General Sealants, and Beacon Adhesives.

Key Benefits For Stakeholders

?This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the aerospace adhesives market analysis from 2022 to 2032 to identify the prevailing aerospace adhesives market opportunities.

?The market research is offered along with information related to key drivers, restraints, and opportunities.

?Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.

?In-depth analysis of the aerospace adhesives market segmentation assists to determine the prevailing market opportunities.

?Major countries in each region are mapped according to their revenue contribution to the global market.

?Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.

?The report includes the analysis of the regional as well as global aerospace adhesives market trends, key players, market segments, application areas, and market growth strategies.

Additional benefits you will get with this purchase are:

? Quarterly Update and* (only available with a corporate license, on listed price)

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? Additional company profiles with specific to client's interest

? Additional country or region analysis- market size and forecast

? Expanded list for Company Profiles

? SWOT Analysis

Key Market Segments

By Technology

? Waterborne

? Solvent borne

? Reactive

By Function

? Structural

? Non-structural

By Resin Type

? Epoxy
? Polyurethane
? Silicone
? Other
By End-user
? Original Equipment Manufacturer
? Maintenance, Repair and Operations
By Region
? North America
? U.S.
? Canada
? Mexico
? Europe
? UK
? Germany
? France
? Russia
? Italy
? Spain
? Rest of Europe
? Asia-Pacific
? China
? India
? Japan
? Australia
? South Korea
? Rest of Asia-Pacific
? LAMEA
? Latin Ameirca
? Middle East
? Africa
? Key Market Players
? Bostik (Arkema)
? Hexcel Corporation
? Permabond
? 3M
? General Sealants
? Henkel
? Solvay
? Scigrip Adhesives
? Master Bond Inc.
? Beacon Adhesives
? Illinois Tool Works Inc.
? H.B. Fuller Company
? PPG Industries, Inc.
? Huntsman Corporation
? LORD Corporation

? DuPont

Table of Contents:

Aerospace Adhesives Market By Technology (Waterborne, Solvent borne, Reactive), By Resin Type (Epoxy, Polyurethane, Silicone, Other), By Function (Structural, Non-structural), By End-user (Original Equipment Manufacturer, Maintenance, Repair and Operations): Global Opportunity Analysis and Industry Forecast, 2023-2032

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