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Aerogel Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Silica, Carbon, Polymer & Others), By Form (Blanket, Particle, Panel & Monolith), By Processing (Virgin, Composites & Additives), By Application (Oil & Gas, Construction, Transportation, Performance Coating, Day-lighting & LVHS & Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Aerogel Market is projected to expand from USD 1.41 Billion in 2025 to USD 3.35 Billion by 2031, reflecting a compound annual growth rate of 15.51%. Aerogels are nanoporous materials created by replacing the liquid in a gel with gas, yielding a solid with ultra-low density and exceptional thermal insulation capabilities. Market growth is driven largely by stringent energy-efficiency regulations in construction and the urgent need for thermal runaway protection in electric vehicle batteries. This demand is highlighted by data from the European Automobile Manufacturers' Association, which noted that battery-electric vehicles captured a 13.6% market share in the EU in 2024, indicating a strong future for automotive thermal solutions.

However, the market faces a substantial obstacle in the form of high production costs linked to intricate processes like supercritical drying. This results in a considerable price premium compared to conventional insulators such as fiberglass or mineral wool, restricting the use of aerogels to specialized sectors where weight and space efficiency justify the cost. Consequently, this economic factor hinders widespread adoption in cost-sensitive industries, preventing the material from achieving mass-market penetration despite its superior properties.

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Market Driver

The rapid adoption of aerogels into thermal management systems for electric vehicle batteries serves as a major growth engine for the market. Automotive OEMs are increasingly utilizing aerogel barriers to prevent thermal runaway in lithium-ion packs, leveraging the material's ability to provide high-performance safety without compromising energy density or adding excessive weight. This trend is reflected in the financial results of key players; for instance, Aspen Aerogels reported in November 2024 that its Thermal Barrier segment revenue hit $90.6 million in the third quarter, a 176% year-over-year jump, highlighting the material's shift from niche industrial use to a vital automotive component.

Concurrently, advancements in manufacturing are reducing costs, helping to overcome historical price barriers and facilitating broader market access. Both government entities and industry leaders are funding new facilities to achieve economies of scale, lowering unit costs for various applications. A prime example is the U.S. Department of Energy's Loan Programs Office committing up to $670 million in October 2024 to support a new large-scale aerogel plant for Aspen Aerogels. These investments also support established sectors, as evidenced by Aspen's Energy Industrial segment generating $128.6 million in revenue in 2023, proving that improved production capabilities benefit a wide existing customer base.

Market Challenge

The prohibitive cost of manufacturing, driven by complex techniques such as supercritical drying, remains a primary hurdle to the expansion of the Global Aerogel Market. These sophisticated processes require substantial energy and specialized facilities, leading to a final product that is significantly more expensive than traditional alternatives. As a result, cost-conscious sectors like general construction and residential building continue to favor cheaper materials such as mineral wool and fiberglass. This restricts aerogel usage to high-end applications where performance is critical, thereby limiting the industry's capacity to scale up production effectively.

Statistical data highlights this competitive gap, which severely constrains market entry into high-volume areas. The European Materials Research Society reported in 2023 that silica aerogel blankets cost between ?80 and ?120 per square meter to produce, a figure far exceeding that of standard insulation options. This large price difference prevents aerogels from becoming a standard solution in budget-sensitive industries,

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effectively stalling their transition into the mainstream insulation market despite their technical superiority.

Market Trends

The widespread adoption of aerogel blankets for industrial retrofitting is transforming maintenance approaches across the global energy infrastructure landscape. Managers of aging LNG and oil and gas facilities are increasingly replacing rigid insulation with flexible aerogel blankets to combat corrosion under insulation (CUI) and improve thermal efficiency. This shift focuses on extending the operational life of assets and minimizing energy loss in complex piping systems where older materials fall short. The economic relevance of this trend is illustrated by Aspen Aerogels' report in February 2025, which showed its Energy Industrial segment achieving a record $53.1 million in quarterly revenue, signaling growing demand for these retrofitting solutions.

In parallel, aerogel is moving beyond industrial applications into the consumer realm through high-performance cold weather footwear and apparel. Manufacturers are utilizing the material's exceptional insulating properties to produce ultra-thin, non-bulky layers that offer warmth comparable to down without the volume. This innovation is gaining commercial ground as companies successfully integrate durable, washable aerogel particles into fabrics. Highlighting this potential, Svenska Aerogel announced in December 2025 that a mature project with a North American outdoor brand is expected to yield an annual value of 20 to 30 MSEK, validating the material's viability in the textile market.

Key Market Players

Aspen Aerogels, Inc.

Cabot Corporation

Aerogel Technologies, LLC

Armacell International S.A.

BASF SE

Active Aerogels LDA

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Enersens SAS

JIOS Aerogel Corporation

Guangdong Alison Hi-Tech Co., Ltd.

Nano Technology Co., Ltd.

Report Scope

In this report, the Global Aerogel Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Aerogel Market, By Type

Silica

Carbon

Polymer & Others

Aerogel Market, By Form

Blanket

Particle

Panel & Monolith

Aerogel Market, By Processing

Virgin

Composites & Additives

Aerogel Market, By Application

Oil & Gas

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- Construction
- Transportation
- Performance Coating
- Day-lighting & LVHS & Others

Aerogel Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain
- Asia Pacific
  - China
  - India
  - Japan

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Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Aerogel Market.

Available Customizations:

Global Aerogel Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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