

Activated Carbon Fibre Market Report and Forecast 2025-2034

Market Report | 2025-08-11 | 161 pages | EMR Inc.

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Report description:

The global activated carbon fibre market is expected to grow at a CAGR of 4.20% during the forecast period of 2025-2034.

Activated Carbon Fibre Market Growth

Activated carbon fibres (ACF) are microporous materials with a fibre shape and well-defined porous structures. Properties such as high packing density and excellent volumetric capacity make ACFs ideal for absorption applications.

The increasing demand for high-performance filtration and adsorption materials in various industries, such as water treatment, air purification, and food and beverage, is a significant driver fuelling activated carbon fibre market expansion. Additionally, the growth of end-use industries, technological advancements, and rising environmental concerns are also contributing to the market growth. Furthermore, the development of innovative fibres and the application of ACF filters in new water purifiers are expected to accelerate the market's growth.

Key Trends and Developments

Rising prevalence of chronic kidney diseases, increasing levels of air pollution, production of composite materials using ACF are key trends influencing the activated carbon fibre market development

May 2024

Palakkad-based Indcarb Activated Carbon Private Limited has launched inline water filters for water purifiers using its coconut shell-based activated carbon. This innovation aims to improve water quality and provide a reliable solution for households and industries.

February 2023

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Evoqua Water Technologies has finalised a deal with DESOTEC to sell off its carbon reactivation and slurry operations in Pennsylvania and Arizona, as well as the reactivation and carbon vessel manufacturing facility in California.

March 2022

One Equity Partners has purchased Norit Activated Carbon from Cabot Corporation. This acquisition is anticipated to enhance Norit's standing in the activated carbon sector and bolster its expansion in delivering purification solutions.

Rising air pollution in industrial areas

Many metropolitan or industrial areas battle with substantial air pollution challenges, which creates a necessity for industrial air purification. Activated carbon effectively removes air pollutants like SO₂ and NO_x, which can bolster the activated carbon fibre market growth.

Focus on sustainable production methods

Activated carbon fibre is being developed using sustainable production methods, which drives the adoption of activated carbon fibres in industries that prioritise environmental concerns, such as water treatment and air purification.

Development of composite materials with enhanced properties

The development of composite materials is a significant trend in the activated carbon fibre market as it involves combining activated carbon fibres with polymers or metals. This trend enables the creation of lightweight and high-performance materials for aerospace, automotive, and energy storage devices.

Expansion into medical applications

Medical industry is using ACFs in medical devices, such as wound dressings and implantable devices, due to their antimicrobial and biocompatible properties. Using ACFs in dressings promote faster healing and reduces the risk of infection.

Activated Carbon Fibre Market Trends

The increased requirement for mercury control technology for industrial air purification applications is increasing the demand for activated carbon fibre. Due to the air pollution caused by manufacturing plants in several developed and developing countries, the governing agencies are undertaking stringent measures to implement a system to clean the hazardous air pollutants. This is positively impacting the activated carbon fibre market outlook.

The growth can further be attributed to ACF's applications in the healthcare sector. Activated carbon fibre is a possible approach to dialysis for patients with end-stage renal illness because it bonds to nitrogen and other pathogens, reducing the number of waste materials that pass-through kidneys. Furthermore, in patients with severe kidney illness, oral activated carbon fibre substantially slows the onset of hyperparathyroidism. In addition, it also slows the progression of vascular calcifications in patients with stage 3-4 CKD. Moreover, the increasing percentage of patients suffering from kidney diseases is expected to boost the market for activated carbon fibre (ACF) throughout the forecast period.

Activated Carbon Fibre Industry Segmentation

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The EMR's report titled "Activated Carbon Fibre Market Report and Forecast 2025-2034" offers a detailed analysis of the market based on the following segments:

Market Breakup by Raw Materials

- Synthetic
 - ??- Pitch-Based
 - ??- PAN-Based
 - ??- Phenolic-Based
 - ??- Viscose-Based
 - ??- Others

- Natural

Market Breakup by Application

- Purification
- Chemical Separation and Catalysis
- Protective Clothing
- Medical
- Super Capacitors
- Others

Market Breakup by Region

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Activated Carbon Fibre Market Share

Synthetic activated carbon fibres have a larger share in the market due to their durability and strength

Synthetic activated carbon fibres dominate the market, where PAN-based activated carbon fibres specifically hold the highest market share. Synthetic fibres are produced from synthetic polymers such as polyacrylonitrile (PAN), phenolic resin, viscose staple, and others. These fibres possess good tensile strength, heat and flame resistance, durability, strength, stiffness, and more, making them suitable for various applications.

Natural activated carbon fibres are derived from natural sources such as coconut shell, wood, bamboo, and cotton. As per activated carbon fibre market analysis, these fibres are activated using physical or chemical methods to produce fibres with high surface area and pore volume. Natural fibres are biodegradable and have a lower environmental impact compared to synthetic fibres.

Purification segment is witnessing rapid growth, driven by rising demand for air and water purification

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The purification segment is expected to dominate the market due to the increasing demand for air and water purification. The growing awareness about air pollution and the need for clean drinking water are driving the demand for ACFs. The automotive industry is also a significant contributor to this segment, as activated carbon fibres are used in emission control systems to reduce pollutants in vehicle exhausts. The super capacitors segment is a growing application of activated carbon fibres as these fibres are used in energy storage devices due to their high surface area and electrical conductivity. The increasing demand for energy storage solutions is further driving the segment's growth.

According to activated carbon fibre market report, the chemical separation and catalysis segment is another significant application of activated carbon fibres as these fibres are used as catalyst carriers and chemical separation agents due to their high surface area, adsorption capacity, cost-efficiency, and reliability. The medical segment is driven by the increasing use of ACF in medical applications such as dialysis and wound care. The fibres are used to remove impurities and toxins from blood and other bodily fluids, and their antimicrobial properties make them useful in wound care.

Activated Carbon Fibre Market Analysis by Region

Asia Pacific dominates the market share due to the increasing demand from various industries and the presence of major manufacturers

Asia-Pacific region is expected to dominate the global market due to the presence of major manufacturers like Toyobo Co., Ltd. (Japan), Kuraray Co., Ltd. (Japan), and Unitika Ltd. (Japan). The region's economic boom, driven by factors like affordable labour and materials, as well as advancements in technology, contributes to the growth of the activated carbon fibre market share. Additionally, the region faces significant air pollution issues, which drives the demand for activated carbon fibres in air purification applications.

In North America, the United States and Canada are significant consumers of synthetic activated carbon fibres due to the growing demand from purification, chemicals, and the medical industry. The region's chemical sector is also expanding, driving the demand for activated carbon fibres in applications such as water treatment and solvent recovery.

Leading Manufacturers in the Activated Carbon Fibre Market

Market players are focused on enhancing product quality, cost-effectiveness, and sustainability to gain a competitive edge while addressing environmental concerns

HPMS Graphite

HPMS Graphite, headquartered in California, United States, is a manufacturer of high-performance graphite-based products. It offers flexible graphite foil products, including homogeneous graphite foil rolls and sheets. The company's graphite foil is known for its high strength, purity, and excellent compressibility.

Unitika Ltd.

Unitika Ltd. was established in 1889 and is based in Osaka, Japan. Its main business segments include its High Polymers division, which produces films, resins, synthetic fibres, and biodegradable plastics. The company also deals in water treatment facilities, incinerators, air pollution prevention, and biotechnology.

Toyobo Co., Ltd.

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Toyobo Co., Ltd. is based in Osaka, Japan and was established in 1882. Its main business segments include film solutions, life science solutions, and environmental and functional materials solutions, with a presence in functional textiles and airbags.

Kuraray Co., Ltd.

Kuraray Co., Ltd. was founded in 1926 and is based in Osaka, Japan. The company operates in 31 countries, with its main manufacturing facilities in Kurashiki, Okayama, Japan. It produces PVA fibre, polyester fibres, activated carbon, and high-performance membranes for water treatment.

Other key players in the global activated carbon fibre market include OJSC SvetlogorskKhimvolokno and EVERTECH ENVISAFE ECOLOGY CO., LTD., among others.

Activated Carbon Fibre Market Report Snapshots

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