

# **Activated Carbon Filter Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type of Activated Carbon (Powdered Activated Carbon, Granular Activated Carbon, Extruded/Block Carbon), By Form (Powder, Granular, Pellets/Blocks), By Application (Water Treatment, Air & Gas Purification, Food & Beverage, Pharmaceutical & Healthcare, Others), By Region, and By Competition, 2020-2030F**

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## **Abstracts**

### Market Overview

The Global Activated Carbon Filter Market was valued at USD 1.75 Billion in 2024 and is expected to reach USD 2.49 Billion by 2030 with a CAGR of 5.93% during the forecast period.

The Global Activated Carbon Filter Market has been witnessing significant growth in recent years, driven primarily by the increasing demand for clean water and air across residential, commercial, and industrial sectors. Activated carbon filters, known for their high adsorption capacity, are widely used to remove impurities, odors, and harmful chemicals from water and air, making them essential in water treatment plants, air purification systems, food and beverage processing, pharmaceuticals, and industrial applications. Rapid urbanization, industrialization, and rising environmental concerns have heightened the need for effective filtration solutions, thereby fueling the adoption of activated carbon filters worldwide.

Among the key applications, water treatment continues to grow due to growing awareness of waterborne diseases and stringent government regulations on potable water quality. Industrial effluents and municipal wastewater treatment have further intensified the demand for granular and powdered activated carbon, which efficiently remove organic compounds, heavy metals, and residual disinfectants. Air and gas purification represents another major segment, supported by the rising awareness of air pollution and indoor air quality standards. Activated carbon filters are increasingly being integrated into HVAC systems, industrial emission controls, and gas processing units to eliminate volatile organic compounds (VOCs), odors, and toxic gases, especially in regions facing rapid urban growth.

The market is also expanding in food, beverage, and pharmaceutical industries, where activated carbon filters play a critical role in refining edible oils, sugar, beverages, and purifying chemical compounds. The healthcare sector, including hospitals and laboratories, relies on these filters for sterile air and water systems to comply with strict hygiene and safety standards. Technological advancements in filter design, such as block, pellet, and granular forms, have improved efficiency, durability, and operational convenience, further enhancing market penetration.

## Key Market Drivers

### Rising Demand for Clean Water in Developing Regions

The demand for clean and safe water is one of the strongest drivers of the activated carbon filter market. Today, nearly 4 billion people, representing about two-thirds of the global population, face severe water scarcity at least one month each year. Global freshwater use has been rising at 1% annually since the 1980s and is projected to grow by another 20–30% by 2050. Agriculture accounts for nearly 69% of total freshwater withdrawals, while industry contributes 19% and households consume the remaining 12%. Urban population growth is intensifying this trend, with Asia-Pacific expected to add more than 600 million people to its cities by 2036. Additionally, untreated sewage and industrial effluents generate massive loads; for example, in a typical industrialized state, sewage generation exceeds 700 million liters per day. Such pressures on water systems highlight the need for advanced purification technologies. Activated carbon filters, with their high adsorption efficiency, are being widely deployed to ensure potable water supply, industrial reuse, and municipal wastewater treatment, making them central to addressing global water challenges.

## Key Market Challenges

## High Production and Operational Costs

One of the most significant challenges in the activated carbon filter market is the high cost associated with production and operations. Activated carbon is primarily derived from raw materials such as coal, wood, and coconut shells, which undergo carbonization and activation processes requiring high temperatures of up to 900–1,000°C. This results in substantial energy consumption, contributing to high production costs. Additionally, supply chain fluctuations in raw material availability—particularly coconut shells, which are seasonally produced in Asia-Pacific—lead to price volatility. The regeneration and replacement of spent activated carbon also add to operating costs, as industrial filters require frequent change-outs depending on contaminant loads. For instance, water treatment plants may need to replace activated carbon every 6–12 months, adding recurring expenditure. Advanced forms such as extruded or block activated carbon filters cost 20–30% more than traditional granular or powdered carbon, further impacting affordability. In regions with weaker purchasing power, especially in emerging economies, these costs pose barriers to adoption despite rising demand. Moreover, companies investing in R&D to improve filter lifespan and regeneration efficiency face additional financial burdens. This cost challenge places pressure on market participants to balance quality with affordability while addressing customer expectations for long-term, sustainable solutions.

## Key Market Trends

### Hybrid Filtration Systems Combining Activated Carbon with Other Technologies

A rising trend is the integration of activated carbon filters with other purification technologies to create hybrid systems. Reverse osmosis (RO) units commonly incorporate activated carbon pre-filters to remove chlorine and organic matter, thereby extending membrane life. Similarly, UV disinfection systems often use activated carbon to eliminate residual chemicals and improve taste in water treatment applications. In fact, over 60% of residential RO systems now include activated carbon stages. Hybrid air purifiers combining HEPA filters with activated carbon account for nearly 70% of premium air purifier sales worldwide, as they offer particulate removal and chemical adsorption simultaneously. Industrial setups are also moving toward integrated systems, with multi-stage units reducing contaminants by 95–99% across multiple pollutant categories. This trend highlights activated carbon's role as a complementary technology, rather than a standalone solution, ensuring its relevance in advanced treatment ecosystems. As hybrid solutions become the industry standard, activated

carbon filters will remain indispensable in achieving comprehensive purification outcomes.

### Key Market Players

Calgon Carbon Corporation

Cabot Corporation

Jacobi Carbons AB

Haycarb PLC

Kureha Corporation

CarboTech AC GmbH

Donau Carbon GmbH

Oxbow Activated Carbon LLC

Carbon Activated Corporation

TIGG LLC

### Report Scope:

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

#### Activated Carbon Filter Market, By Type of Activated Carbon:

Powdered Activated Carbon

Granular Activated Carbon

Extruded/Block Carbon

### Activated Carbon Filter Market, By Form:

Powder

Granular

Pellets/Blocks

### Activated Carbon Filter Market, By Application:

Water Treatment

Air & Gas Purification

Food & Beverage

Pharmaceutical & Healthcare

Others

### Activated Carbon Filter Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

South America

Brazil

Argentina

Colombia

Asia-Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Activated Carbon Filter Market.

Available Customizations:

*Activated Carbon Filter Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By...*

Global Activated Carbon Filter Market report with the given market data, Tech Sci 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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