

Carbon Felt & Graphite Felt Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Carbon Felt, and Graphite Felt), By Application (Batteries, Filters, and Furnace), By Product Type (Rigid Felt, and Soft Felt), By Region and Competition, 2020-2030F

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Abstracts

Market Overview

The Global Carbon Felt & Graphite Felt Market was valued at USD 469.96 Million in 2024 and is projected to reach USD 693.98 Million by 2030, growing at a CAGR of 6.85%. This market is witnessing steady expansion driven by rising demand across sectors such as aerospace, energy storage, metallurgy, and chemical processing. These felts, composed primarily of carbon and graphite fibers, are known for their lightweight structure, thermal and electrical conductivity, and resistance to high temperatures and chemical corrosion. Their unique properties make them ideal for insulation in extreme environments, particularly in applications like thermal shielding for aerospace, battery electrodes, and high-temperature industrial furnaces. The expanding aerospace and defense industry, which contributed USD 955 billion in output in 2023, plays a key role in propelling the market, as these materials are critical for manufacturing lightweight and high-performance thermal components. Additionally, the global shift toward renewable energy and advanced battery storage systems is fueling demand for carbon and graphite felts in applications such as vanadium redox flow batteries and fuel cells, further reinforcing the market's positive trajectory.

Key Market Drivers

Growing Demand for High Performance Batteries is Major Factor for Carbon Felt & Graphite Felt Market Growth

The surge in demand for high-performance batteries is a key growth driver for the carbon felt and graphite felt market. These felts are vital components in lithium-ion batteries, supercapacitors, and fuel cells, where they serve as conductive, porous electrodes that enhance energy density and improve charge-discharge efficiency. The growing electric vehicle (EV) market has significantly increased the need for durable battery materials. Carbon and graphite felts contribute to improved performance and longevity of these energy systems. From 2020 to 2050, the demand for critical battery materials is expected to rise sharply, with lithium projected to increase from 7.3 Mt to 18.3 Mt, cobalt from 3.5 Mt to 16.8 Mt, and nickel from 18.1 Mt to 88.9 Mt. This exponential growth reflects the scale at which advanced battery technologies are expanding, creating strong demand for efficient conductive materials such as carbon felt and graphite felt. Their ability to support long battery life and energy efficiency makes them crucial to meeting the evolving requirements of clean energy and electric mobility solutions.

Key Market Challenges

High Manufacturing Cost

The high manufacturing cost remains a major challenge for the carbon felt and graphite felt market. Producing these materials involves complex, resource-intensive processes, including the use of high-purity carbon precursors and specialized heat treatment techniques. This not only requires significant energy consumption but also demands precise quality control and advanced equipment, driving up production expenses. The cost issue is particularly problematic in price-sensitive markets where end-users may opt for less expensive alternatives. Furthermore, high raw material and operational costs limit widespread adoption in emerging industries and restrict market expansion in cost-constrained regions. Companies are exploring cost-reduction strategies such as optimizing manufacturing processes, implementing recycling techniques, and sourcing sustainable raw materials to improve economic feasibility. Tackling these cost barriers is critical for scaling production and increasing adoption across both traditional and emerging industrial applications.

Key Market Trends

Growing Adoption of Renewable Energy

The increasing global shift toward renewable energy is significantly influencing the growth of the carbon felt and graphite felt market. These materials are critical in technologies supporting the clean energy transition, particularly in energy storage systems such as vanadium redox flow batteries (VRFBs). Their high electrical conductivity, chemical resistance, and porous structure make them ideal electrodes in VRFBs, which are widely used for storing solar and wind energy. Additionally, carbon and graphite felts are being explored for use in hydrogen fuel cells, where they contribute to efficient thermal and electrical performance. As countries and industries pursue decarbonization goals, the demand for reliable, high-performance materials in renewable energy applications is rising. This trend is expected to continue as the renewable sector grows, further driving the need for advanced materials that enhance the performance and sustainability of energy systems.

Key Market Players

Nippon Carbon Co Ltd

Advanced Graphite Materials LLC

Beijing Great Wall Co.,Ltd.

CeraMaterials

CeTech Co. Ltd

CFCCARBON Co, LTD.

CGT Carbon GmbH

Chemshine Carbon Co.,Ltd.

Fiber Materials Inc.

Gansu Hao's Carbon Fiber Co., Ltd.

Report Scope:

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

Carbon Felt & Graphite Felt Market, By Type:

Carbon Felt

Graphite Felt

Carbon Felt & Graphite Felt Market, By Application:

Batteries

Filters

Furnace

Carbon Felt & Graphite Felt Market, By Product Type:

Rigid Felt

Soft Felt

Carbon Felt & Graphite Felt Market, By Region:

Asia-Pacific

China

India

Japan

Australia

South Korea

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Qatar

Turkiye

Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Carbon Felt & Graphite Felt Market.

Available Customizations:

Global Carbon Felt & Graphite Felt 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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