

Global Silicon Carbide Fibers Market Size study & Forecast, by Phase (Crystalline and Amorphous), by Application (Aerospace & Defense, Energy & Power, Industrial, and Others) and Regional Analysis, 2023-2030

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Abstracts

Global Silicon Carbide Fibers Market is valued at approximately USD 0.53 billion in 2022 and is anticipated to grow with a healthy growth rate of more than 18.6% over the forecast period 2023-2030. SiC (silicon carbide) fiber refers to a type of composite material made primarily of silicon carbide molecules. It is a high-performance fiber known for its exceptional mechanical properties, including high stiffness, tensile strength, and excellent resistance to chemicals. They are typically manufactured using methods such as the Yajima process, chemical vapor deposition (CVD), or laser-driven chemical vapor deposition (LCVD). The global SiC fiber market is experiencing significant growth driven by increased demand in the aerospace sector and the adoption of SiC fiber in the energy and power industry. The utilization of silicon carbide-based fibers in Ceramic Matrix Composites (CMCs) is a key factor contributing to market expansion. The rising demand for SiC fibers has attracted the attention of manufacturers and investors, leading to increased research and development efforts to enhance their effectiveness in high-temperature environments.

Moreover, the growing aerospace industry is playing a significant role in supporting the growth of the Silicon Carbide (SiC) Fibers Market. The aerospace industry has a constant demand for lightweight and high-strength materials to improve fuel efficiency and enhance overall performance. Silicon carbide fibers offer a high strength-to-weight ratio, making them ideal for applications such as aircraft structures, engine components, and rocket nozzles. Their use enables manufacturers to reduce weight while maintaining structural integrity. According to the Aerospace Industries Association, in

2022, the Aerospace industry generated USD 892 billion in sales, showing a 2.1 percent increase from the previous year in 2021. Furthermore, the aerospace and defence industries contributed USD 391 billion to the US economy, representing 1.7 percent of total nominal GDP. Also, according to the IBEF in 2020, the Indian aerospace and defence (A&D) market is projected to reach USD 70 billion by 2030. Additionally, increasing technological advancement and the energy power sector provide lucrative opportunities to the market. However, the high manufacturing cost of Silicon Carbide Fibers stifles market growth throughout the forecast period of 2023-2030.

The key regions considered for the Global Silicon Carbide Fibers Market study includes Asia Pacific, North America, Europe, Latin America, and Middle East & Africa. North America dominated the market in 2022 owing to the presence of key market players, Increasing industrialization and raising technological advancement in SiC fibers contributed to market growth in North America. Asia Pacific is expected to grow at fastest growth rate during the forecast period, owing to the rapid growth of the defense sector is driving the demand for high-quality SiC fibers, prompting manufacturers to meet the increased requirements. Additionally, countries such as India and Japan are experiencing a surge in the establishment of new nuclear power plants, where SiC fibers are extensively used for temperature-resistant insulation.

Major market player included in this report are:

NGS Advanced Fibers Co., Ltd,
SGL Carbon SE
Free Form Fibers LLC
GE Aviation Systems
American Elements
Haydale Technologies, Inc.
UBE Industries Ltd
Nippon Carbon Co., Ltd.
BJS Ceramics GmbH
Compagnie de Saint-Gobain S.A

Recent Developments in the Market:

In April 2020, Unique SiC fibres for aviation engines have been created by NASA Glenn Research using a low-temperature microwave method.

Global Silicon Carbide Fibers Market Report Scope:

Historical Data – 2020 - 2021

Base Year for Estimation – 2022

Forecast period - 2023-2030

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Segments Covered - Phase, Application, Region

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent up to 8 analyst's working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values to the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within countries involved in the study.

The report also caters detailed information about the crucial aspects such as driving factors & challenges which will define the future growth of the market. Additionally, it also incorporates potential opportunities in micro markets for stakeholders to invest along with the detailed analysis of competitive landscape and product offerings of key players. The detailed segments and sub-segment of the market are explained below:

By Phase:

Crystalline

Amorphous

By Application:

Aerospace & Defense

Energy & Power

Industrial

Others

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy
ROE

Asia Pacific
China
India
Japan
Australia
South Korea
RoAPAC

Latin America
Brazil
Mexico

Middle East & Africa
Saudi Arabia
South Africa
Rest of Middle East & Africa

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