

Silicon Carbide Fibers Market Size, Share & Trends Analysis Report By Form (Continuous, Woven), By Usage (Composite, Non-composites), By End Use (Energy & Power, Industrial), By Region, And Segment Forecasts, 2025 - 2030

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Abstracts

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Silicon Carbide Fibers Market Growth & Trends

The global silicon carbide fibers market size is expected to reach USD 5.49 billion by 2030, registering a CAGR of 28.1% from 2025 to 2030, according to a new report by Grand View Research, Inc. This can be attributed to the superior strength-to-weight ratio, high modulus, good chemical resistance, and low thermal expansion offered by silicon carbide (SiC) fibers.

Product demand is witnessing growth in the manufacture of hot section components of military and commercial gas turbine engines due to superior thermal and oxidation resistance offered by the product at high temperature. Product penetration is also increasing in manufacturing radiation blankets, channel boxes, and fuel cladding for nuclear reactors. Application scope of the product in aforementioned areas is expected to propel the market for silicon carbide fibers.

Industry participants are engaged in the development of advanced thermo-chemical techniques to convert precursor fibers to high-performance ultra-high temperature silicon carbide fibers with improved thermal and structural capability. Use of these products is expected to boost the engine performance under extremely high-temperature conditions. Continuous form was the largest product segment in 2024 on account of its extensive

use driven by superior properties such as weight reduction and high toughness.

Expanding application scope of the product in the manufacture of aircraft engine parts and rising product penetration in spacecraft components are emerging as crucial factors driving the demand for silicon carbide fibers. SiC fiber reinforced composites are broadly replacing the metal parts in aircraft owing their light weight and heat resistance, which aid in enhancing fuel efficiency of aircraft engines. Asia Pacific SiC Fibers market is expected to advance at a remarkable CAGR of 27.6% from 2025 to 2030 with expanding application industries of the product, primarily including aerospace & defense and energy & power.

Silicon Carbide Fibers Market Report Highlights

The continuous form dominated the market and accounted for the largest revenue share of 60.6% in 2024 attributed to the increasing demand for high-performance materials in the aerospace, automotive, and defense industries.

The aerospace and defense segment dominated the market and accounted for the largest revenue share of 63.2% in 2024 and is projected to witness the highest growth over the forecast period owing to the rapid growth of aircraft manufacturing industry.

North America silicon carbide fibers market dominated the global market and accounted for the largest revenue share of 52.1% in 2024, in terms of revenue, due to increased aircraft production and rising penetration of silicon carbide fibers in aircraft industry.

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