Silicon Carbide Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 150 pages | Mordor Intelligence

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Report description:

The global silicon carbide market is expected to reach 523.46 kilotons by the end of this year and is expected to register a CAGR of over 12% during the forecast period. The market was negatively impacted due to COVID-19 in 2020. The disruption in the global supply chain, coupled with reduced demand from various end-user industries, has negatively impacted the demand for silicon carbide. The global automotive industry witnessed a decline in sales in 2020, approximately 78 million units, much below the 90.4 million units sold in 2019. However, the conditions recovered in 2021, and sales increased to 82.6 million units; the automotive market is on a growth trajectory over the forecast period.

Key Highlights
The major factors driving the market studied are strong demand from the steel manufacturing & steel processing industry and rapidly growing demand from the electronics industry.
Some factors restraining the demand for the market studied include fluctuating costs of raw materials like coal and petroleum coke.
The rising penetration of electric vehicles is expected to offer various opportunities for the growth of the market.
By application, the electronics and semiconductor segment is expected to dominate the market owing to the properties offered by silicon carbides, such as outstanding power switching frequency, performance, and power rating compared to silicon.
Asia-Pacific region dominated the market globally, with the most significant consumption from countries such as China, India, and Japan.

Silicon Carbide Market Trends

Increasing Usage in Electronics and Semiconductor Segment

Silicon carbide is a semiconductor containing silicon and carbon. Grains of silicon carbide can be molded together to form very hard ceramics that are used in applications requiring high endurance.
Silicon carbide is widely used in manufacturing semiconductors due to its properties, like the ability to work at high temperature or high voltage, or both, and reduced form factor.
The declining semiconductor sector registered positive growth in 2021, due to robust demand from data centers, and consumer electronics manufacturing, as employees of many sectors preferred work-from-home options throughout 2020. According to the World Semiconductor Trade Statistics (WSTS), the global sales of semiconductor was USD 556 billion in 2021 with an increase of more than 26% from the previous year. It is anticipated to increase by 10.4% by the end of 2022. Asia-Pacific is likely to showcase substantial growth in the electronics and semiconductor industry during the forecast period.
In North America, especially in the United States, the electronics industry is expected to grow at a moderate rate. An increase in the demand for new technological products is expected to help the market expansion in the future.
The German electronic industry is Europe's biggest and the fifth-largest, globally. The electrical and electronics industry accounted for 11% of the total German industrial production and about 3% of the country's gross domestic product (GDP).
The United Kingdom is the largest European market for high-end consumer electronics products, with about 18,000 UK-based electronics companies in the market.
Furthermore, the demand for smart consumer electronics is growing exponentially, globally, creating opportunities for the silicon carbide market to grow.
Due to all the factors mentioned above for silicon carbide, its market is expected to grow rapidly over the forecast period.

Asia Pacific to Dominate the Market

Asia Pacific is expected to dominate the market for silicon carbide during the forecast period. In countries, like China, India, and Japan, due to the increasing demand for advance and upgraded technology across various sectors, including electronics, automotive, and defense, the demand for silicon carbide has been increasing in the region.
China is one of the major consumers of semiconductors, and it is trying to ramp up semiconductor production. Semiconductors as a key area of the Made in China 2025 plan, a government initiative that aimed to boost the production of higher-value products. China is aiming to produce 70% of the semiconductors it uses by 2025.
According to the reports of the Department of Electronics and Information Technology, over 2,000 semiconductor chips are designed in India every year. The increasing production of semiconductors may propel the silicon carbide market in the future.
The India Electronics and Semiconductor Association (IESA) signed an MoU with the Singapore Semiconductor Industry Association (SSIA) to establish and develop trade and technical cooperation between the electronics and semiconductor industries of both countries. This is expected to result in the development of various breakthrough semiconductor manufacturing technologies that may further increase the scope for the consumption of silicon carbide in semiconductor manufacturing in India.
The government launched new schemes to promote electronics production in India, Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS), and the scheme for modified Electronics Manufacturing Clusters (EMC 2.0) alongside Production Linked Incentive (PLI). According to the PLI scheme, the government is likely to offer incentives as manufacturers increase production in India, with USD 5.5 billion available over five years. This is likely to boost the production of electronics in the country.
India's Automotive Industry is worth more that USD 100 billion and contributes 8% of the country's total export and accounts for 2.3% of India's GDP and is set to become the 3rd largest in the world by 2025.
Moreover, in March 2022, China announced a 7.1% increase in its defense budget to about USD 230 billion. The country's recent plans are to build a fully modern military on par with the United States by 2027. The country has been investing in aircraft carriers

and stealth aircraft in the past few years. Moreover, it plans to increase the number of aircraft carriers to about five to six, worldwide, including Beijing's backyard, the South China Sea (SCS).
The factors mentioned above, coupled with government support, contribute to the increasing demand in the region during the forecast period.

Silicon Carbide Market Competitor Analysis

The silicon carbide market is partially consolidated, with players accounting for a significant market share. Some key market players (not in any particular order) include Saint-Gobain, Imerys, Tokai Carbon Co., Ltd., Schunk Ingenieurkeramik GmbH, and Morgan Advanced Materials.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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