Synthetic Graphite - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 120 pages | Mordor Intelligence

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Report description:

The Synthetic Graphite Market size is estimated at USD 3.41 billion in 2025, and is expected to reach USD 4.74 billion by 2030, at a CAGR of 6.83% during the forecast period (2025-2030).

The synthetic graphite market faced setbacks due to COVID-19. Global lockdowns and stringent government regulations led to widespread shutdowns of production hubs. However, the market rebounded in 2021 and is projected to see significant growth in the upcoming years.

Key Highlights
- Over the short term, increasing demand for electric vehicles and growing utilization of electric arc furnace processes for steel production are the major factors driving the demand for the market studied.
- However, strict environmental regulations and the high cost of production of graphite are expected to hinder the market's growth.
- Nevertheless, the growing popularity of graphene and bio-graphite as a sustainable resource for battery material is expected to create new opportunities for the market studied.
- Asia-Pacific region is expected to dominate the market across the world, with the majority of demand coming from China and India.

Synthetic Graphite Market Trends

Metallurgy Segment to Dominate the Market

- Graphite finds diverse applications in metallurgy, including uses in electrodes, refractories, bricks, and monolithic crucibles.
- In the electric arc furnace (EAF) method, synthetic graphite serves as an anode for producing steel, ferroalloys, and aluminum.
- Metallurgical applications utilize synthetic graphite electrodes as energy sources. These applications range from melting scrap iron and refining ceramic materials to manufacturing chemicals like calcium carbide, all of which demand high-temperature and clean energy sources.
- Global increases in crude steel and aluminum production are set to boost synthetic graphite's metallurgical applications. Yet, fluctuations in metal production may introduce uncertainties in market demand.
- Based on electric current capability, synthetic graphite electrodes come in various grades: ultra-high power (UHP), high power (HP), and regular power (RP).
- According to data from the World Steel Association (worldsteel), global crude steel production fell to 143.6 million tonnes (Mt) in September 2024, down from 144.6 million tonnes (Mt) in August 2024. While these figures underscore challenges in the industry, a rebound in steel demand is on the horizon, driven by infrastructure projects in emerging economies.
- Moreover, bolstered steel production capacities in nations like China and the United States, among others have further fueled global steel output.
- The demand for steel produced via the EAF process is growing significantly. EAFs' lower capacity intensity and enhanced resilience, along with the environmental impact of the BOF method, are anticipated to drive the adoption of EAFs in crude steel production, particularly in developed nations.
- China, the world's largest steel producer, is aligning its steelmaking strategy with decarbonization goals. Between late 2022 and 2024, China announced the commissioning of around 16 new EAFs, coinciding with the phasing out of outdated crude steelmaking facilities. This push aims to raise the proportion of EAF-based steel output to 15-20% by 2025.
- The United States, ranked as the fourth-largest producer of crude steel globally, reported a production of 6.7 Mt in September 2024, witnessing a modest increase of 1.2% as compared to the same period of 2023. However, the year-to-date production figures were at 60.3 Mt, indicating a decline of 1.6%, as per the World Steel Association.
- Germany showcased a positive trend, producing an estimated 3 Mt in September 2024, which is a 4.3% increase as compared to the samer peroiod of the previous year. Year-to-date, Germany's production reached 28.4 Mt, marking a notable 4% rise, according to data from the World Steel Association.
- Brazil led the pack with the highest growth, producing 2.8 Mt in September 2024, an impressive increase of 9.9% as compared to the same period of 2023. Year-to-date, Brazil's production stood at 25.2 Mt, up by 4.4%, as reported by the World Steel Association.
- Steel finds applications in diverse sectors, including construction, railroads, automotive manufacturing, and both capital and consumer goods production. Over the past decade, rising industrialization in developing nations has significantly spurred the demand for steel.
- Given this trajectory, the anticipated growth in the global steel sector is poised to elevate demand in metallurgical applications, further propelling the studied market's expansion.

Asia-Pacific Region to Dominate the Market

- Asia-Pacific is set to spearhead the synthetic graphite market, emerging as the region with the swiftest growth during the forecast period. This upswing is largely driven by surging demands across diverse applications, such as metallurgy, components, batteries, and nuclear energy, especially in countries like China, India, South Korea, Japan, and several Southeast Asian nations.
- China stands as the globe's leading producer of iron and steel, with its output serving both domestic and international markets. As per the data from the World Steel Association, while China retained its title as the largest producer, it saw a 6.1% dip in output for September 2024, totaling 77.1 million tonnes (Mt). Year-to-date figures show China's production at 768.5 Mt, reflecting a 3.6%

drop from 2023.
- China remains the dominant force in both the production and consumption of synthetic graphite on a global scale. The entire lithium-ion battery manufacturing chain is heavily centered in China, which stands out as the largest and fastest-growing market for these batteries, consequently driving the expansion of the synthetic graphite market.
- In 2023, China's lithium-ion battery sector maintained its upward trajectory, witnessing a 25% year-on-year increase in total output. According to the Ministry of Industry and Information Technology, the output surpassed 940 gigawatt-hours (GWh). Valued at over CNY 1.4 trillion (USD 197 billion), the sector's output in 2023 was significant. Notably, batteries designated for power storage accounted for 185 GWh, with an installed capacity exceeding 435 GWh.
- India is home to several prominent graphite electrode manufacturers, all of whom are ramping up their capacities to cater to the burgeoning demand. This trend is bolstering the growth of the synthetic graphite market. For instance, HEG Limited, in November 2023, augmented its graphite electrode capacity in Madhya Pradesh from 80 kilotons per annum to 100 kilotons per annum. This expansion, costing INR 1,200 crore (USD 143.741 million), catapulted HEG to the position of the third-largest graphite electrode company in the Western hemisphere.
- Furthermore, data from the U.S. Energy Information Administration and the International Atomic Energy Agency reveals that over the last decade, China has added more than 34 gigawatts (GW) of nuclear power capacity. As of August 2024, the nation operates 56 nuclear reactors with a combined net capacity of 54.3 GW. With an additional 27 reactors currently under construction, this growth is poised to amplify the demand for nuclear applications, further propelling the market's expansion.
- Given these dynamics, the Asia-Pacific region is poised for a surge in synthetic graphite demand during the forecast period.

Synthetic Graphite Industry Overview

The synthetic graphite market is partially consolidated in nature. The major players (not in any particular order) include Resonac Holdings Corporation, GrafTech International, BTR New Material Group Co. Ltd, Ningbo Shanshan Co., Ltd., and Imerys, among others.

Additional Benefits:

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

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