

## **Graphite Electrode - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

Market Report | 2024-02-17 | 170 pages | Mordor Intelligence

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### **Report description:**

The Graphite Electrode Market size is estimated at USD 10.19 billion in 2024, and is expected to reach USD 13.37 billion by 2029, growing at a CAGR of 5.59% during the forecast period (2024-2029).

The market was affected negatively by the COVID-19 outbreak in 2020. However, with the resumption of operations in major end-user industries, it recovered significantly in 2021.

#### Key Highlights

- In the short term, the strong growth in steel production in emerging countries and the rising availability of steel scrap in China are expected to drive the market's growth.
- On the flip side, soaring prices of needle coke are likely to hinder the growth of the studied market.
- The rising production of steel through electric arc furnace (EAF) technology in China is expected to act as an opportunity for the market in the coming years.
- The Asia-Pacific region is expected to dominate the market due to strong demand from China.

#### Graphite Electrode Market Trends

##### The Electric Arc Furnace Segment to Dominate the Market

- An electric arc furnace (EAF) melts steel scrap, DRI (directly reduced iron), HBI (hot briquetted iron, which is compacted DRI), or

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pig iron in solid form to produce steel. On the EAF route, electricity provides the required power to melt the feedstock.

- Graphite electrodes are primarily used in the electric arc furnace (EAF) steelmaking process to melt steel scrap. Electrodes are made of graphite due to their ability to withstand high temperatures. In EAF, the tip of the electrode can reach 3,000° F, which is half the temperature of the sun's surface. The size of electrodes varies widely, from 75 mm to as large as 750 mm in diameter and up to 2,800 mm in length. Electric arc furnaces (EAF) in steel mills and iron and steel foundries commonly use UHP electrodes (usually 350 mm and larger) and HP and UHP electrodes (typically 400 mm and smaller), respectively.
- The recent price surge for graphite electrodes has boosted EAF mills' costs. As of February 16, 2022, the average price of the graphite electrode in China was up by 5.17% from the beginning of the year and 44.48% from the same period last year.
- In China, EAF steel accounts for around 10% of the overall share. However, the situation is expected to change due to the growing availability of steel scrap in the country and the government's policies supporting the use of steel scrap. Due to such factors, the demand for graphite electrodes used for EAF applications is expected to increase steadily during the forecast period.
- The downstream graphite electrode steel plants are in a recovery state. The graphite electrode stock is insufficient compared to previous years. With the resumption of steel plants, demand is expected to increase.
- According to the World Steel Association, the production of crude steel for 63 countries in the month of February 2023 was 142.4 million metric tons (Mt). In February 2023, the Middle East produced 3.5 million metric tons of crude steel. This was up by 11.5% as compared to the same period in 2022.
- As a result, there will be a rise in the price of graphite electrodes during the forecast period due to favorable demand, limited supply, and high cost.

### China to Dominate the Asia-Pacific Region

- The decision-making bodies in China have strongly supported EAF steelmaking technologies in their efforts to decrease carbon emissions and achieve sustainability in the nation's steel industry.
- China holds the largest share in terms of consumption and production capacity of graphite electrodes in the global scenario. At present, there are more than 40 official graphite electrode producers in China, with 30 new entrants that have added other refractory products, along with electrodes, to the market in the past 2-3 years.
- In March 2022, Xinyu Steel started constructing its 100-metric-ton EAF project. The new mill is expected to have a liquid steelmaking capacity of 1 million metric tons annually.
- Chinese graphite electrode producers are constantly trying to procure quality needle coke via imports or domestic procurement while securing technology for quality improvement. Chinese electrode manufacturers are also focusing on producing more UHP-grade graphite electrodes with sizes larger than 700 mm.
- The National Development and Reform Commission (NDRC), China's economic planning body, published a plan for the country's resource recycling industry on July 7 this year to accelerate the development of a low-carbon circular economy. The plan included a goal for scrap usage in the steel sector to reach 320 million tons in 2025.
- Looking into the next decade, the share taken by EAF steel is estimated to reach 40% of global steel output, against 30% in 2020, with EAF steel in China at 25% of the country's total in 2030, compared with around 10% last year, according to Fastmarkets' steel research team.
- Hence, the above factors will lead to the growth of the studied market in China over the forecast period.

### Graphite Electrode Industry Overview

The graphite electrode market is partially consolidated. Some of the key players (not in any particular order) include GrafTech International, Resonac Holdings Corporation, Fangda Carbon New Material Co., Ltd., Zhongze Group, and Dan Carbon among others.

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## Additional Benefits:

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

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