

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

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### **Report description:**

The Global Graphene Market size is estimated at USD 0.76 billion, and it is expected to reach USD 4.13 billion in the next five years, registering a CAGR of 40.37% during the forecast period.

COVID-19 negatively impacted the market in 2020 and 2021. The resumption of operations in major end-user industries significantly recovered in 2022.

#### Key Highlights

- Over the medium term, graphene aiding the aerospace industry and rising demand for printed electronics are ed to drive the market.
- However, the drawbacks associated with graphene hinder the market's growth.
- The development of graphene nanodevices for DNA sequencing and the adoption of graphene into photodetectors are expected to act as opportunities for the market studied.
- The Asia-Pacific region has the highest market share and is expected to dominate the graphene market during the forecast period.

#### Graphene Market Trends

Electronics and Telecommunication Segment to Dominate the Market

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- Electronics and telecommunications is the largest end-user industry for graphene and its derivative products. This industry uses graphene for various applications, including unbreakable touchscreens, transistors, supercharged batteries (enhanced lithium-ion batteries), optical electronics, printed electronics, and conductive inks.
- Graphene has several useful properties, including high mechanical strength, electron mobility, and superior thermal conductivity.
- According to the Japan Electronics and Information Technology Industries Association (JEITA), the production by the global electronics and IT industry was valued at USD 3,436.8 billion in 2022, registering a growth of 1% year on year, compared to USD 3,360.2 billion in 2021. Moreover, the industry is expected to reach USD 3,436.8 billion, with a growth of 3% yearly this year.
- The Asia-Pacific electronic industry has grown rapidly lately, owing to the high demand from countries like China, Japan, and India. China is a strong, favorable market for electronics producers, owing to the country's low labor cost and flexible policies.
- China is the largest base for electronics production in the world. Electronic products, such as smartphones, TVs, and other personal devices, recorded the highest growth in electronics. The country serves the domestic demand for electronics and exports electronic output to other countries. This factor is expected to drive the growth of the market studied.
- India is expected to become the world's fifth-largest consumer electronics and appliances industry, with a digital economy of USD 1 trillion in the next few years.
- Indian electronics system design and manufacturing (ESDM) sector is expected to generate over USD 100 billion in economic value in the next few years. Electrical and electronics production in India is expected to increase rapidly due to government initiatives with policies, such as Make in India, National Policy of Electronics, Net Zero Imports in Electronics, and Zero Defect Zero Effect, which offer a commitment to growth in domestic manufacturing, lowering import dependence, energizing exports, and manufacturing, like the 'Make in India' program to make the country self-reliant.
- In Europe, the German electronics industry is the largest in the region. According to the Zentralverband Elektrotechnik- und Elektronikindustrie eV (ZVEI), German electro and digital industry turnover accounted for EUR 224.5 billion (USD 236.58 billion) in 2022, witnessing a growth of 12% compared to 2021.
- Due to the factors mentioned above, the demand for electronic goods is set to increase during the forecast period, thereby increasing the demand for graphene.

#### China to Dominate the Asia Pacific Market

- The Asia-Pacific region accounts for the largest share of the graphene market. Owing to rapid industrialization and rising graphene-based application patents in the region, graphene oxide is anticipated to register high growth.
- China has one of the largest production bases for electronics. It offers tough competition to the existing upstream producers, such as South Korea, Singapore, and Taiwan. Electronic products such as smartphones, OLED TVs, and tablets have the highest growth rates in the consumer electronics segment of the market in terms of demand.
- According to the National Bureau of Statistics of China, retail sales of household appliances and consumer electronics in China amounted to almost CNY 61 billion (USD 8.52 billion) in April 2023.
- Major electronics companies operating in China are BOE, Changhong, DJI, Haier, Hisense, Huawei, Konka, Lenovo (Hong Kong-based), Meizu, Panda Electronics, Skyworth, SVA, TCL, Xiaomi, Oppo, and ZTE. The expansion of the electronics industry in China is expected to boost the graphene market during the forecast period.
- Furthermore, graphene is used to create lighter and impact-resistant aircraft and helicopter structures. Deicing systems on wings can be manufactured using graphene. Considering thermal/electrical conductivity, mechanical resistance, and straightforward functionalization, graphene is used in several defense applications, including optoelectronic devices, flexible systems, ballistic protection materials, lightweight protection armor, military helmets, camouflage, and signature management.
- China is one of the largest aircraft manufacturers and one of the largest markets for domestic air passengers. Moreover, the country's aircraft parts and assembly manufacturing sector has been increasing, with over 200 small aircraft parts manufacturers.
- The Chinese aerospace industry is recovering steadily after facing a significant decline in the previous years. The Civil Aviation

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Administration of China (CAAC) has estimated the aviation sector to recover domestic traffic to around 85% of pre-pandemic levels.

- Moreover, Chinese airline companies plan to purchase about 7,690 new aircraft in the next 20 years, valued at approximately USD 1.2 trillion, which is expected to raise the demand for the graphene market.
- According to the Stockholm International Peace Research Institute (SIPRI), China, the world's second-largest spender, allocated an estimated USD 292 billion to its military last year, an increase of 4.2% compared to the year prior. China's military expenditure has increased for 28 consecutive years.
- Hence, owing to the abovementioned trends, Asia-Pacific is expected to dominate the market studied during the forecast period.

## Graphene Industry Overview

The global graphene market is consolidated, where top players hold the majority share of the market studied. Some of the major players in the market (not in any particular order) include NanoXplore Inc., The Sixth Element (Changzhou) Materials Technology Co. Ltd, NeoGraf, Morsh (Ningbo Moxi Technology Co. Ltd), and Global Graphene Group, among other companies.

### Additional Benefits:

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

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