Global 2D Materials Market 2023

Abstracts

The global 2D materials market is projected to rise by USD 1,327.6 million by 2029, according to the latest market study results. It is anticipated to expand at a CAGR of 29.1 percent during the forecast period. 2D materials, a class of atomically thin materials with unique properties arising from their structure and composition, encompass a variety of substances including graphene, black phosphorus, MXenes, transition metal dichalcogenides (TMDCs), hexagonal boron nitride, and others.

These materials possess exceptional electronic properties that make them highly appealing for applications in transistors, sensors, and other electronic devices. With their high carrier mobility and the ability to tune their bandgaps, 2D materials emerge as promising contenders for next-generation electronics.

The distinctive surface area and properties of 2D materials render them suitable for energy storage applications such as batteries and supercapacitors. Their capacity to efficiently store and deliver charge drives the demand for these materials within the energy sector.

Moreover, certain 2D materials such as TMDCs and black phosphorus exhibit remarkable optical properties, characterized by strong light-matter interactions and tunable bandgaps. As a result, they hold significant value in optoelectronics, photodetectors, and light-emitting devices.

The discovery and development of new 2D materials like MXenes have opened up fresh avenues for designing and engineering materials with enhanced properties. This, in turn, propels research and development efforts in the field while creating opportunities for commercial applications.

Beyond electronics and energy, 2D materials demonstrate potential in environmental

remediation, water purification, and biomedical applications. Their expansive surface area, adjustable properties, and biocompatibility make them attractive candidates for deployment in sensors, drug delivery systems, and tissue engineering projects.

The report covers market size and growth, segmentation, regional breakdowns, competitive landscape, trends and strategies for global 2D materials market. It presents a quantitative analysis of the market to enable stakeholders to capitalize on the prevailing market opportunities. The report also identifies top segments for opportunities and strategies based on market trends and leading competitors' approaches.

Market Segmentation
Product: black phosphorous, graphene, hexagonal boron nitride, MXene, TMDCs, others
End user: automotive, composites and coatings, electronics, energy storage, pharmaceuticals, semiconductor, others
Region: North America, Europe, China, Asia-Pacific (ex. China), Rest of the World

This industry report offers market estimates and forecasts of the global market, followed by a detailed analysis of the product, end user, and region. The global market for 2D materials can be segmented by product: black phosphorous, graphene, hexagonal boron nitride, MXene, TMDCs, others. The graphene segment held the largest revenue share in 2022. Graphene, a single layer of carbon atoms arranged in a two-dimensional honeycomb lattice, exhibits exceptional properties that make it highly sought after in various industries and applications. It possesses unmatched electrical conductivity, mechanical strength, thermal conductivity, and optical transparency . These extraordinary properties have led to extensive research and development efforts and have positioned graphene as a promising material for numerous applications.

2D materials market is further segmented by end user: automotive, composites and coatings, electronics, energy storage, pharmaceuticals, semiconductor, others. Among these, the composites and coatings segment was accounted for the highest revenue generator in 2022.

Based on region, the 2D materials market is segmented into: North America, Europe, China, Asia-Pacific (ex. China), Rest of the World. China captured the largest share of the market in 2022.

Major Companies and Competitive Landscape

The report has also analysed the competitive landscape of the global 2D materials market with some of the key players being 2D Carbon Graphene Material Co., Ltd., ACS Material, LLC, AMO GmbH, Applied Graphene Materials plc, BASF SE, BGT Material Limited, Cabot Corporation, Directa Plus S.p.A, Elcora Advanced Materials Corp., G6 Materials Corp., Global Graphene Group, Inc., Grafoid, Inc., Graphene Manufacturing Group Ltd., Graphene NanoChem Plc, Graphene Square Inc., GRAPHENEA S.A. , Graphensic AB, Grupo Graphenano, Haydale Graphene Industries plc, Nanoinnova Technologies SL, Nanoxplore Inc., Ningbo Moxi Technology Co., Ltd., Nitronix Nanotechnology Corporation, Ossila Ltd., Perpetuus Advanced Materials plc, Smart-elements GmbH, The Sixth Element (Changzhou) Materials Technology Co., Ltd., Thomas Swan & Company Ltd., Versarien plc, Vorbeck Materials Corporation, XG Sciences, Inc. (NanoXplore Inc.), Xiamen Knano Graphene Technology Co., Ltd., among others. In this report, key players and their strategies are thoroughly analyzed to understand the competitive outlook of the market.

Scope of the Report
To analyze and forecast the market size of the global 2D materials market.
To classify and forecast the global 2D materials market based on product, end user, region.
To identify drivers and challenges for the global 2D materials market.
To examine competitive developments such as mergers & acquisitions, agreements, collaborations and partnerships, etc., in the global 2D materials market.
To identify and analyze the profile of leading players operating in the global 2D materials market.

Why Choose This Report
Gain a reliable outlook of the global 2D materials market forecasts from 2023 to 2029 across scenarios.
Identify growth segments for investment.
Stay ahead of competitors through company profiles and market data.
The market estimate for ease of analysis across scenarios in Excel format.
Strategy consulting and research support for three months.
Print authentication provided for the single-user license.

Recent Developments
? On August 29, 2022, NanoXplore Inc. announced that it had been the winning bidder for a significant portion of the assets of XG Sciences Inc. in a sale conducted by XG's senior secured creditor pursuant to Article 9 of Michigan's enactment of the Uniform Commercial Code. NanoXplore and the senior creditor entered into an asset purchase

agreement, through which NanoXplore acquired XG's mechanical milling platform, research and development lab, and all issued and pending patents and trademarks, among other items. The payment for this transaction was made in cash, without any share issuance.

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