

The Global Market for Graphene Quantum Dots 2023-2033

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Abstracts

Graphene quantum dots (GQDs) represent relatively new members of the carbon nanomaterials family. Studies have demonstrated that quantum confinement could appear in graphene with finite size and edge effects-graphene quantum dots (GQDs). GQDs display properties derived from both graphene and quantum dots (QDs), combining the structure of graphene with the edge effects, non-zero band gap, and quantum confinement effects of QDs. They possess unique optical and electrical properties such as:

high quantum yield

high electrical conductivity

high thermal conductivity

excellent photostability

biocompatibility

superior stability compared to non-carbon QDs.

highly tunable photoluminescence (PL)

electrochemiluminescence

exceptional multi-photon excitation (up-conversion) property

ease of functionalization

low-toxicity.

As a result, they are being widely investigated for applications in optoelectronics, photonics, biomedicine, energy storage and conversion, anti-counterfeiting and sensors.

Report contents include:

Properties of graphene quantum dots (GQDs).

Comparison to quantum dots.

Synthesis and production assessment.

Applications of graphene quantum dots (GQDs).

Addressable markets for graphene quantum dots (GQDs) including Optoelectronics, Photonics, Energy storage and conversion, Biomedicine and life sciences and Anti-counterfeiting.

Global revenues estimated to 2033 by market.

Market and technology challenges for graphene quantum dots (GQDs).

Pricing.

14 company profiles including Dotz Nano Ltd., Green Science Alliance Co., Ltd., Quantuag Nanotechnologies and Qurv Technologies.

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