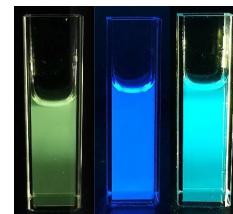


96-7410 Graphene Quantum Dots (GQDs) Master Kit 1 kit

This Master Kit contains all items currently included in the Mini Kits, **96-7420** and **96-7425**, which are listed below with their contents and details. Each Mini Kit is also available for individual sale. All kit components are also available for individual sale.



96-7420 Graphene Quantum Dots in water (GQDs) Mini Kit (Liquids) 1 kit

Item #	Description	Color & Form	Photoluminescence			
			QY ⁺ *	λ_{\max} *	Max emission	FWHM *
06-0332	Graphene Quantum Dots (GQDs) in water, Aqua-Green Luminescent	cloudy orange liq.	>17%	485 nm	525 nm	70 nm
06-0336	Graphene Quantum Dots (GQDs) in water, Blue Luminescent	cloudy colorless liq.	>65%	350 nm	445 nm	65 nm
06-0340	Graphene Quantum Dots (GQDs) in water, Cyan Luminescent	cloudy brown liq.	>25%	420 nm	490 nm	80 nm

This kit contains 100ml of each product listed above. Components are available for individual sale.

Particle diameter: <5 nm

Topographic height: 1.0 - 2.0 nm

Concentration: 1mg/ml

Storage and Handling: Use within 6 months of purchase. Do not freeze. Store in dark.

96-7425 Graphene Quantum Dots (GQDs) Mini Kit (Powders) 1 kit

Item #	Description	Color & Form	Photoluminescence			
			QY ⁺ *	λ_{\max} *	Max emission	FWHM *
06-0330	Graphene Quantum Dots (GQDs), Aqua-Green Luminescent	dark red-brown powdr.	>17%	485 nm	525 nm	70 nm
06-0334	Graphene Quantum Dots (GQDs), Blue Luminescent	dark brown powdr.	>65%	350 nm	445 nm	65 nm

This kit contains 100mg of each product listed above. Components are available for individual sale.

Particle diameter: <5 nm

Topographic height: 1.0 - 2.0 nm

Storage and Handling: Use within 6 months of purchase. Do not freeze. Store in dark.

*** Abbreviations**

QY ⁺	Quantum Yield
λ_{\max}	Maximum excitation wavelength
FWHM	Full width at half maximum

Sold in collaboration with Dotz Nano Ltd. for research purposes only.

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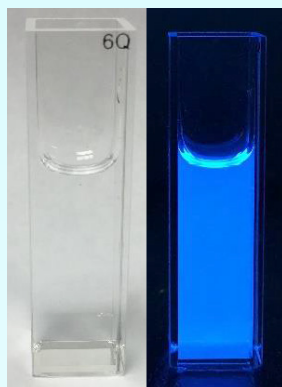
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Aqua-Green Luminescent 06-0330 and 06-0332



Blue Luminescent 06-0334 and 06-0336



Cyan Luminescent 06-0340



Optical images of GQDs powder suspended in water under visible (left) and 365nm UV light (right).

5 Major Characteristics:

- Significantly higher QY (more than 75%)
- Lower in price
- Non-toxic
- Anti-Bacterial properties
- Mass production is possible

Suggested Applications:

Graphene quantum dots (GQDs), sheets of few-layered graphene and lateral dimensions smaller than 100nm, possess strong quantum confinement and edge effects. Thus, they possess unique physical properties such as strong photoluminescence, which can be tailored for specific applications by controlling their size, shape, defects, and functionality.

In contrast to classic QDs, such as metal or silicon quantum dots, GQDs are biocompatible, photostable, and inherit superior thermal, electrical and mechanical properties from the graphene. These features can greatly contribute to various state-of-the-art applications:

- Optical brighteners
- Taggants for security application¹
- Bioimaging markers²
- Fluorescent polymers³
- Antibacterial⁴, antibiofouling⁵, and disinfection systems⁶
- Heavy metals⁷, humidity and pressure⁸, sensors
- Batteries⁹
- Flash memory devices¹⁰
- Photovoltaic devices¹¹
- Light-emitting diodes¹²

References:

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