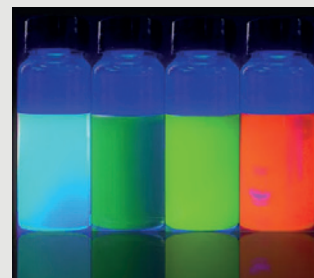


4nDOTS Fluorescent Nanoprobes

Nanomaterials

Description

4nDOTS™ Fluorescent Nanoprobes are quantum-dots from semiconducting materials of a few nanometers in diameter (few tens of atoms). They™ have unique properties, intermediate between those of bulk materials and discrete atoms that are partly the result of their unusually high surface-to-volume ratios. The most striking feature is fluorescence, wherein the 4nDOTS™ can produce distinctive colors, determined by their size. Quantum dots present advantages with respect to protein based organic fluorophores, such as a broad excitation spectrum separate from the emission spectrum, and greatly reduced photobleaching, allowing multiplexed imaging and their use as markers over long periods. For more information please visit www.phornano.com



Properties

Broad excitation and narrow emission spectra

The broad excitation spectrum allows to excite different colors with a single fixed wavelength laser, whereas the narrow emission signals mean that the different colors do not overlap. Furthermore, emission and excitation signals can be easily distinguished, typically being more than 100nm apart.

Tunable bandgap

The high level of control over the size of the nanoparticles produced allows tuning the color of the light emitted.

Fully biocompatible

Their aqueous medium and controlled pH makes these particles fully biocompatible. 4nDOTS™ can also be functionalized according to our customers' needs.

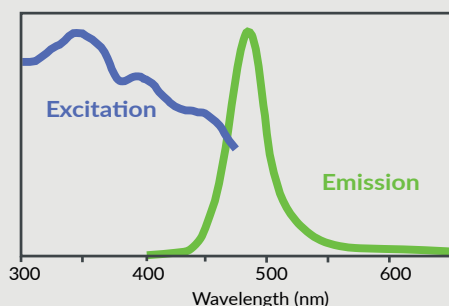
High efficiency, low photobleaching

The particles' high efficiency and low photobleaching make them ideal for bioimaging, and enable studying living cells over longer periods.

Specifications

Material	CdSe, CdS, CdTe
Quantum Yield	>50%
Absorbance Peak	<450nm
Emission peak	customizable between 540 and 650 nm ($\Delta\lambda=\pm 10\text{nm}$)
Concentration	$6 \cdot 10^{16}$ NP/mL
Solvent	aqueous medium
pH	7.2 - 7.4
Shelf life†	6 months

†retesting recommended after this period



Applications

Photonics	Microelectronics	Biomedicine
Solid-state lighting	Ultra-fast all-optical switches	Biomedical imaging
Displays	and Logic gates	Sensors
Photovoltaics	Quantum computing	