

QUANTUM DOTS

NANOMATERIALS

Using das-Nano proprietary production methods, outstanding Quantum-dots are produced in industrial (repeatable, reproducible and scalable) way:

- ✓ CdSe based QDs.
- ✓ Cd Free forms.
- ✓ Core-Shell when required.
- ✓ Organic or water solvent.



DESCRIPTION

Product name: CdSe QDs

Description: das-Nano's cadmium selenide quantum dots are semiconductor nanoparticles with outstanding fluorescent properties. They bear narrow emission bands with emission wavelengths that can be varied from 500 nm to 620 nm by tuning their size among 3 and 5 nm. We offer QDs with narrow emission bands at 508, 544 and 602 nm; QDs with different emission wavelengths can be synthesized and supplied on demand.

Material composition:

- ✓ Nanoparticles: cadmium selenide quantum dots (CdSe QDs)
- ✓ Stabilizers: oleic acid and trioctylphosphine
- ✓ Solvent: on customer demand: low boiling point solvents (hexane, toluene, chloroform) or high boiling point solvents (long-chain aliphatic hydrocarbons, long-chain amines, long-chain ethers).

Concentration: on customer demand, among 0.1 and 20mg CdSe/ml

Stability: highly-stable colloidal dispersions over time for 1 year (minimum) after storage in the dark, under air atmosphere

Storage: in the dark, under inert or air atmosphere, at 4-25°C

MAIN FLUORESCENCE PROPERTIES AND PHOTOLUMINESCENCE SPECTRA

Material	Emission wavelength (nm)	Peak tolerance (nm)	FWHM (nm)	Emission efficiency (%)
CdSe-508	508	5	<45	>30
CdSe-544	544	4	<45	>40
CdSe-602	602	5	<45	>45

*FWHM = full width at half maximum

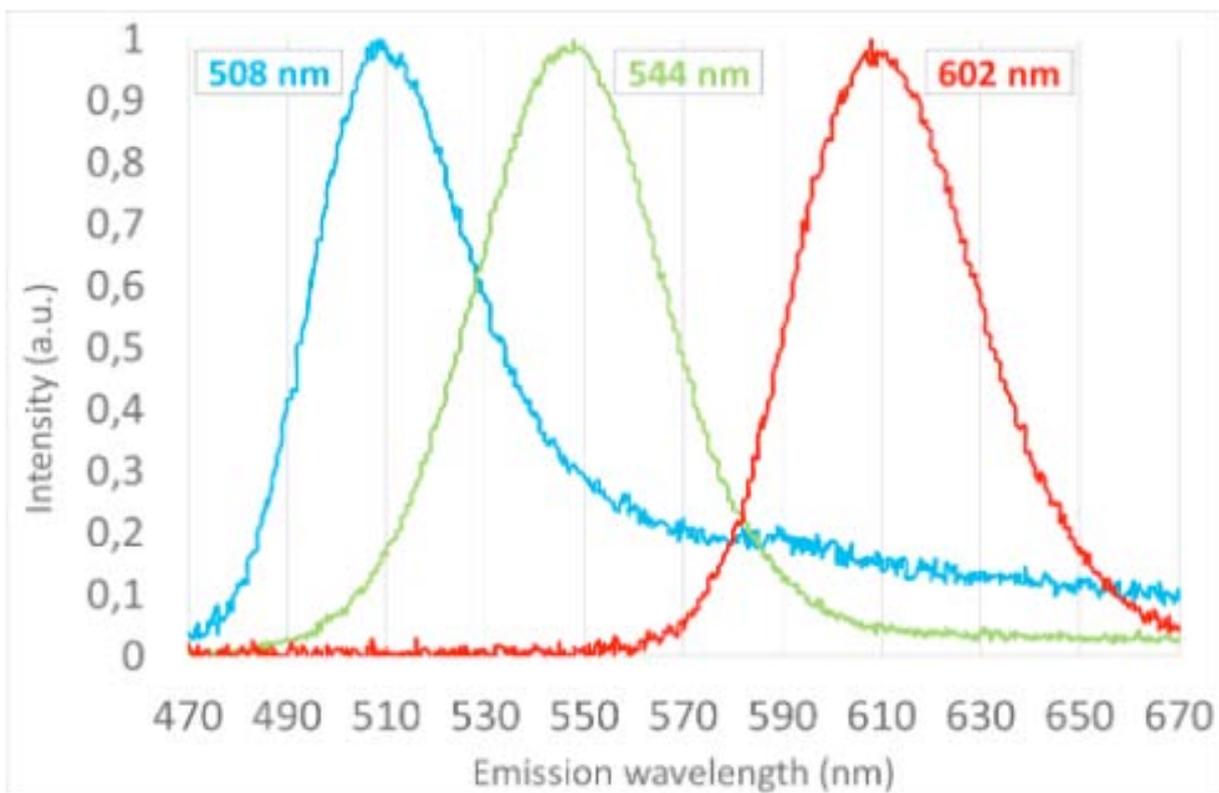
**Quantum yield calculated vs fluorescein standard ($\lambda_{exc}(QDs) = 370 \text{ nm}$; $\lambda_{exc}(\text{fluorescein}) = 510 \text{ nm}$)



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Emission tail over 530 nm in CdSe-508 is due to deep-trap emission, typical of the smallest CdSe QDs.

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