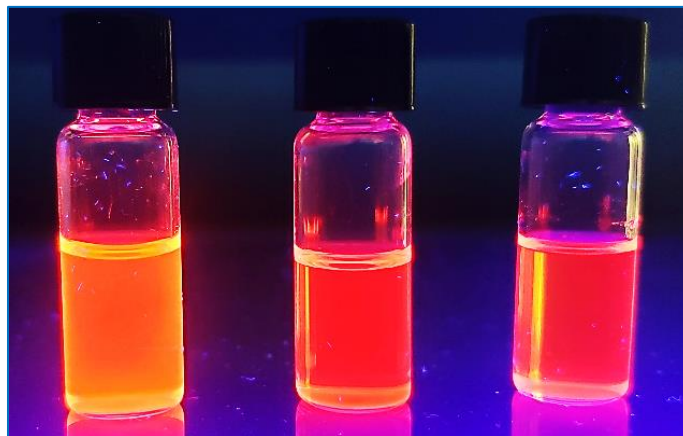
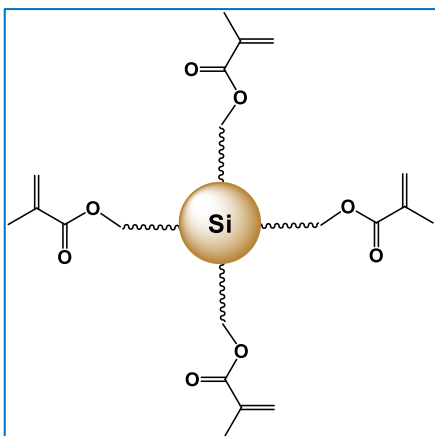


Methyl Methacrylate-Terminated Silicon Quantum Dots

Silicon Quantum Dots dispersed in organic solvent



Description

Methyl methacrylate-terminated silicon quantum dots are readily dispersible in wide variety of organic solvents including anisole, chloroform, dioxane, THF, toluene, methanol, and ethanol. These particles can be used in photopolymerizable resins and 3D printing, advanced lithography and photoresists, luminescent polymer nanocomposites, LED and display technologies, portable optical sensors (e.g., explosive detection, polymer nanocomposite films), biomedical materials, photonic devices, security and anti-counterfeiting technologies, luminescent solar concentrators, and smart coatings.

Advantages Over Traditional QDs

- Free of toxic metals (e.g., Cd, Pb, In) or phosphines.
- Bright PL, tunable from 600 to 950 nm (visible to near-IR).
- Low self-absorption due to large Stokes-shift >400 meV.
- Stable PL at elevated temperatures > 100°C and high humidity.

Product Specifications

| | Size | PL _{max} | Catalog No. |
|--------------------------|-------------------------------|-------------------|-------------|
| Particle Sizes Available | 3 nm | 660 ± 20 nm | |
| | 5 nm | 740 ± 20 nm | |
| | 6 nm | 800 ± 20 nm | |
| Material Composition | Silicon | | |
| Forms | Orange/red solutions | | |
| Photoluminescence | λ _{em} 660 to 800 nm | | |
| FWHM | <120 nm | | |
| PL Lifetime | >50 μs | | |
| Shelf Life | 3 Months ¹ | | |

¹Note: The shelf life is approximate and requires proper storage conditions. Materials improperly stored can oxidize and lose optical properties. Methyl methacrylate functional groups are light- and heat-sensitive and should be stored in the dark under refrigeration.

Uses & Handling Recommendations

- Shipped in solution. 1 mL, 5 mL, 10 mL, 15 mL, and 20 mL solution in glass vials (bulk can be supplied upon request).
- Typical concentrations ~ 2 mg/mL.
- Exposure of MMA-terminated SiQDs to water will cause oxidation. Minimize exposure to water whenever possible. Water soluble MMA- terminated SiQDs can be made upon request.
- Sonication can be used to help disperse the MMA-terminated SiQDs in desired organic solvent (usually anisole, chloroform, dioxane, THF, toluene, methanol, and ethanol).

[Contact us](#) for purchasing/customization options. AQM can tailor the surface chemistry to provide SiQDs suitable for specific applications.

Characterization Data

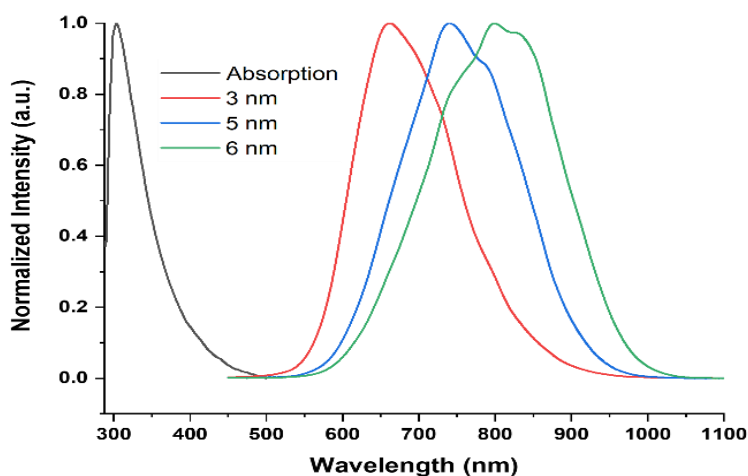


Figure 1. Photoluminescence spectra.