

Electronic supplementary information

RSC Advances

Preparation and Photoluminescence Properties of Yellow-Emitting CuInS₂/ZnS Quantum Dots Embedded in TMAH-Derived Silica

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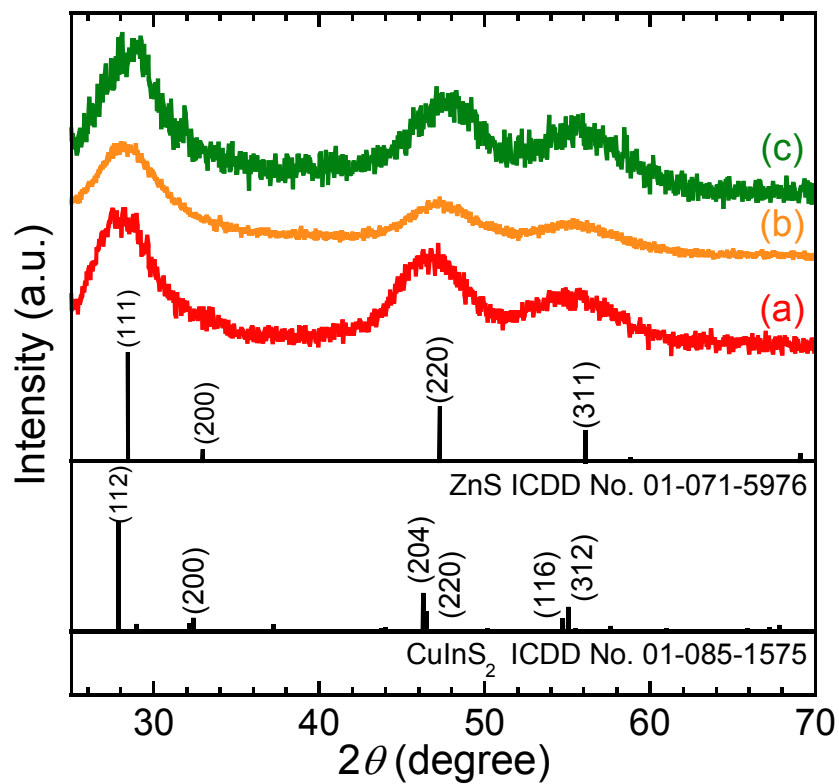


Fig. S1 XRD profiles of powder samples of (a) CIS, (b) CIS/ZnS, and (c) CIS/ZnS/ZnS QDs. ICDD card data of tetragonal-chalcopyrite-type CuInS₂ and zinc-blende-type ZnS are shown for comparison.

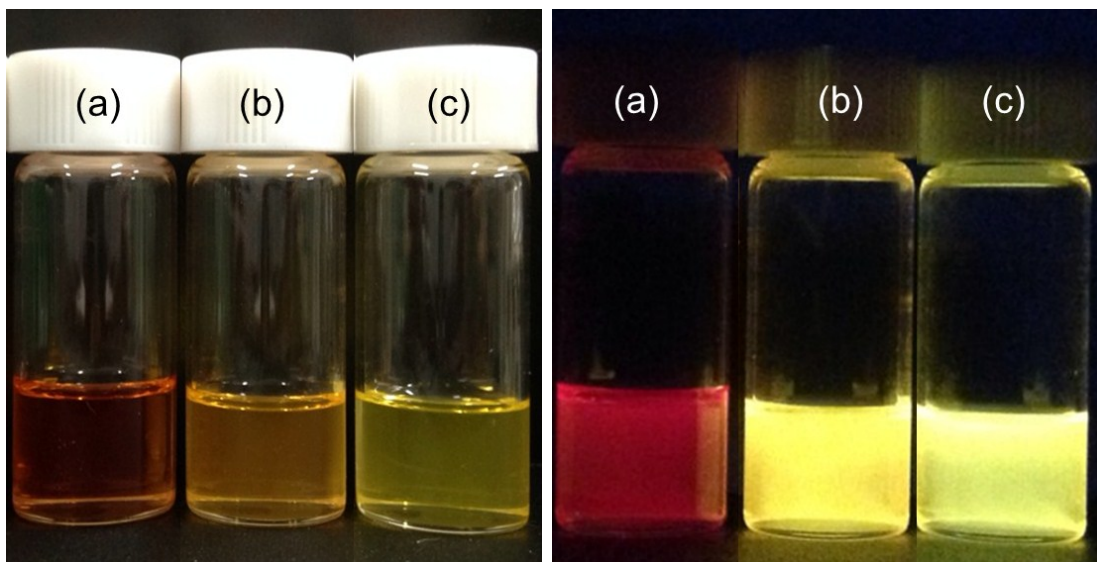


Fig. S2 Photographs of (a) CIS, (b) CIS/ZnS, and (c) CIS/ZnS/ZnS QD dispersions under white light (left) and 365 nm near-UV light.

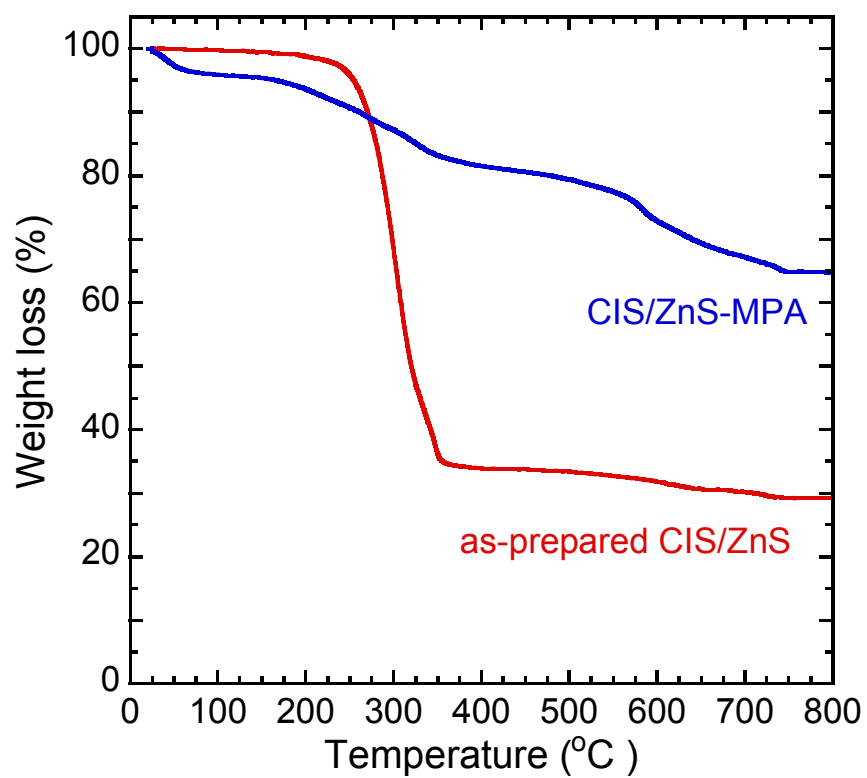


Fig. S3 TGA curves of as-prepared CIS/ZnS and CIS/ZnS-MPA QD powder samples under Ar gas flow.

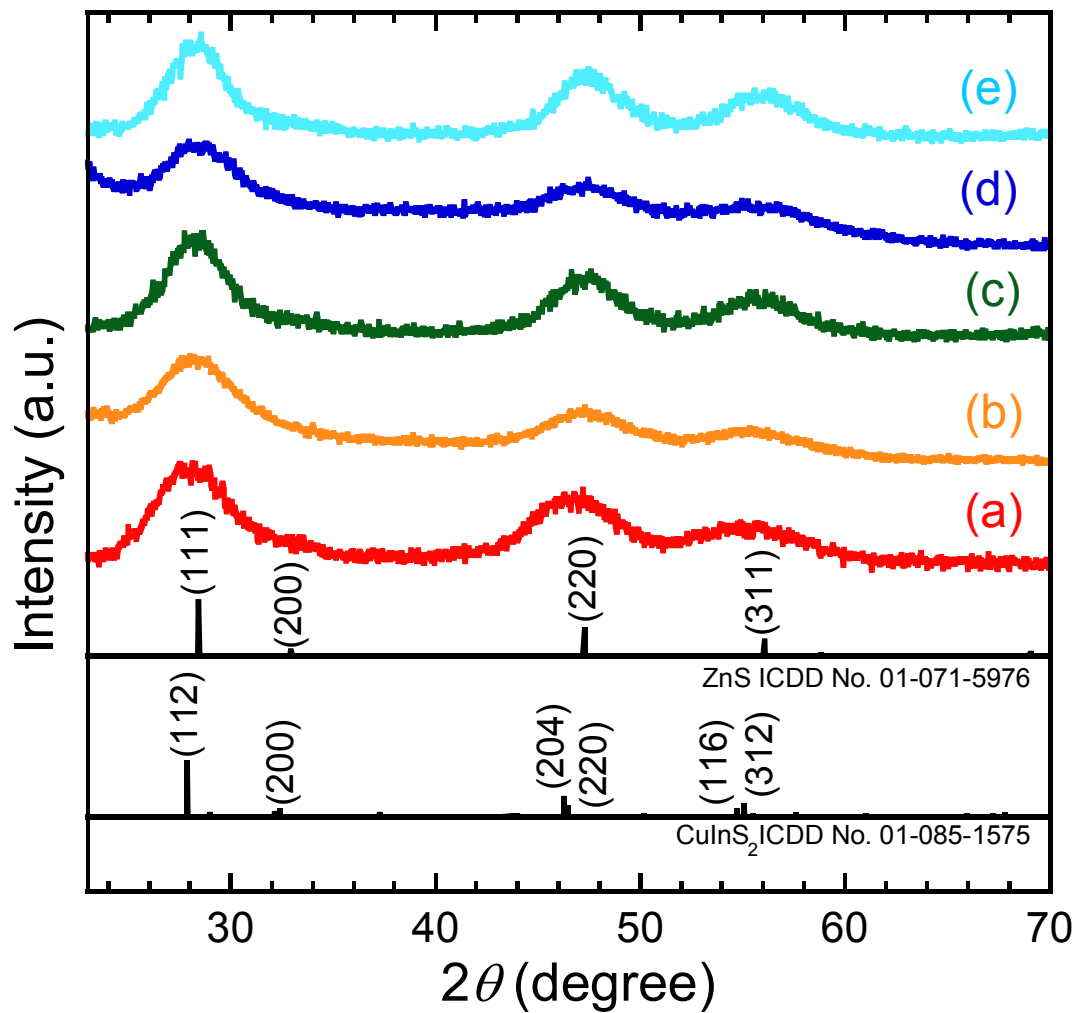


Fig. S4 XRD profiles of powder samples of (a) as-prepared CIS, (b) as-prepared CIS/ZnS, (c) CIS/ZnS-MPA, (d) as-prepared CIS/ZnS/ZnS, and (e) CIS/ZnS/ZnS-MPA QDs. ICDD card data for tetragonal-chalcopyrite CIS and zinc-blende ZnS are also shown.

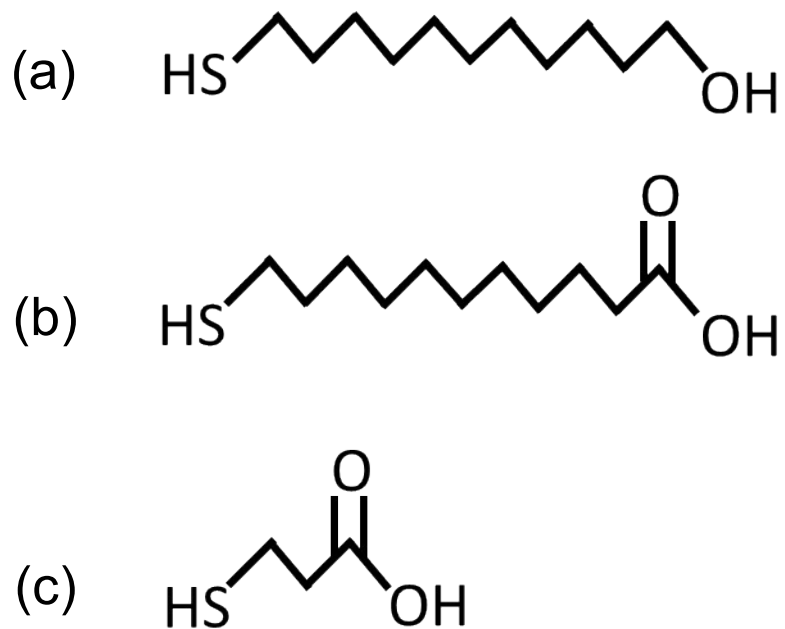


Fig. S5 Molecular structures of thiol surfactants (a) MUD, (b) MUA, and (c) MPA, used for ligand exchange upon hydrophilization.

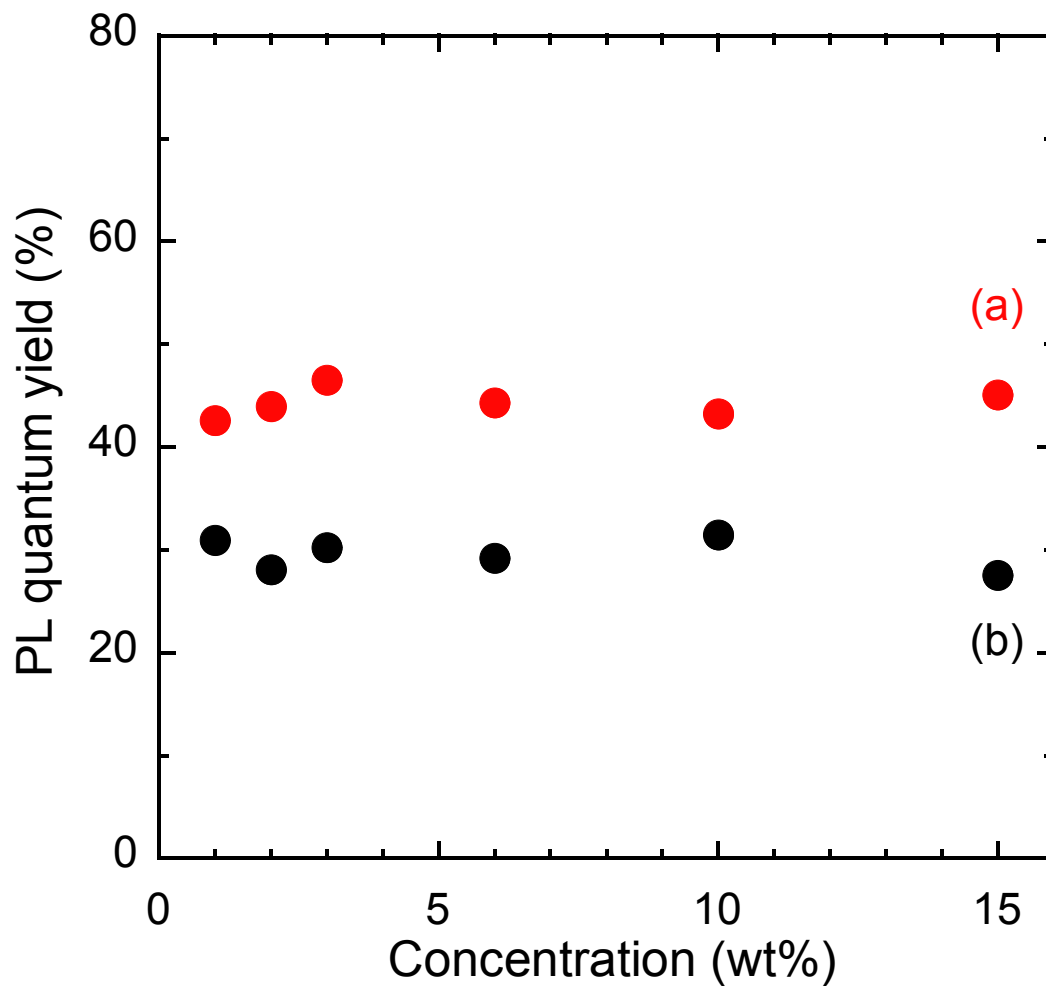


Fig. S6 Absolute QYs of TMAS-derived silica composites containing different concentrations of (a) CIS/ZnS/ZnS and (b) CIS/ZnS QDs.