CIS-800-QDLC

Technical Data Sheet

General Description

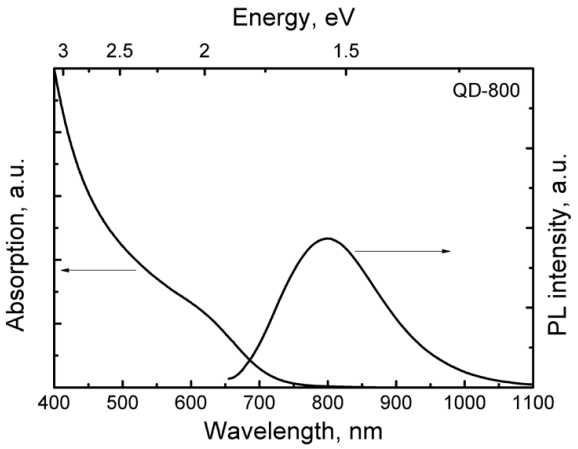
$CuInS_2$/ZnS core-shell quantum dots (QD) emitting peak photoluminescence at 800 nm wavelength, supplied as a stabilized liquid concentrate in 1-tetradecene (TDE) for customer reformulation prior to incorporation into inks, coatings, or polymer systems. Typical applications include light conversion to near-infrared. The ZnS shell and organic ligand layer provide surface passivation for improved optical stability. Exhibits strong UV absorption. Heavy-metal- and phosphine-free composition. Low self-absorption due to a large Stokes shift (>300 meV).

Properties

QD CAS #	927198-36-5
TDE CAS #	1120-36-1
Form	Colloidal dispersion
Composition	$CuInS_2$/ZnS
Peak Emission Wavelength, UV excited (nm)	800 ± 20
Full width at half maximum (nm)	180 ± 50
Quantum Yield (%)	>75%
Appearance	Dark charcoal
QD Particle Size (nm)	6±2
Solvent	1-tetradecene
QD Content	50 ± 1 wt%
Filtration	Shipped ≥0.2 µm PTFE-filtered
Density, 25°C (g/mL)	1.2 ± 0.1
Ligand	Long chain carboxylic acid

For more information about test methods, contact your UbiQD representative.

Representative Absorption & Emission Spectra*



*Excited under 405nm. Diluted in toluene.

Handling, Storage & Shelf Life

- Avoid exposure to UV or direct sunlight during handling; normal indoor lighting is acceptable.
- Store in closed, upright container at room temperature protected from light and moisture.
- Unopened Shelf Life: 6 months

Stability & Durability

- QDs may undergo photo-oxidation and loss of quantum yield if not properly formulated, packaged, and stored.
- As-supplied dispersion is intended for formulation and not for direct use. Long-term stability depends on the user's chosen

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formulation and must be verified under intended conditions.
- Incompatible with strong acids and bases, or with strong oxidizing agents.
- QDs may degrade at temperatures 180-240°C.
- QD emission may redshift at temperatures >50°C.

Solvent Compatibility & Dilution

- Good: toluene, hexane, 1-octadecene
- Poor/not recommended: alcohols, water, highly polar or protic solvents
- Note: Dilution solvent can shift emission wavelength and impact quantum yield. User must test in their chosen formulation and verify under intended conditions.

Processing & Use

- For polymer compounding, use liquid injection for extrusion.
- For solution applications: settling can occur; redisperse by gentle inversion, vortexing, or brief low-energy sonication (<30 s). Avoid prolonged high-shear, probe, or aggressive sonication.

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