

Quartz Thin Layer Spectroelectrochemical Cell Integrated Spectrophotometric Analysis Hermetic Electrochemical Cell

Item Number: PL-DJ05



Introduction

This professional quartz thin-layer spectroelectrochemical cell features an integrated adhesive-free design, exceptional optical transmittance, and an absolute hermetic sealing system, delivering unparalleled precision and reliability for advanced analytical spectroscopy and electrochemical laboratory research applications.

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Application	Description	Key Benefit
Homogeneous Catalysis Studies	Real-time monitoring of organometallic catalysts and ligand-centered redox processes using in-situ ultraviolet-visible spectroscopy.	Captures short-lived reaction intermediates and resolves coordination changes during catalytic cycles.
Redox Flow Battery R&D	Spectroscopic tracking of chemical degradation, state-of-charge variations, and charge-transfer pathways in organic/inorganic electrolytes.	Delivers quantitative kinetic data to optimize molecular stability and electrolyte formulation.
Bioelectrochemical Kinetics	Characterization of electron-transfer mechanisms and redox potentials of immobilized metalloproteins (e.g., Cytochrome c, Hemoglobin).	Thin-layer design limits diffusion distance, enabling rapid, complete protein electrolysis for clean spectral analysis.
Electrochromic Polymer Testing	Evaluation of color-changing characteristics and absorption profile shifts of conjugated conducting polymers under applied electrical potentials.	Achieves precise voltage-to-absorbance correlation for developing smart windows and displays.
Organic Optoelectronics	In-situ analysis of light-emitting molecules, radical ions, and polaron formation in organic light-emitting diode (OLED) materials.	Prevents solvent evaporation and ambient oxygen degradation during highly sensitive optoelectronic sweeps.
Corrosion & Passivation Analysis	Investigation of early-stage metal dissolution and passive oxide layer formation on precious metal surfaces in corrosive acidic media.	High-purity quartz windows resist chemical etching, maintaining optical path integrity throughout aggressive runs.

Parameter	Specification Details (Model: PL-DJ05)
Product Model Number	PL-DJ05
Cell Body Material	Monolithic High-Purity Polished Quartz (Glue-Free / Joint-Free)
Light Transmission Rate	≥ 95% (across UV-Vis-NIR spectrum)
Optical Paths	4-Side Light Transmissive
Lid Material	High-Performance Polyetheretherketone (PEEK)
Inner Core Alignment Mechanism	360-Degree Rotating PEEK Core
Electrode Sealing Mechanism	PTFE Plugs with Compression Screws and Fluorocarbon O-Rings
Overall Sealing Type	Absolute Hermetic / Airtight Sealing System
Cell Body Profile	Square, 12 mm × 12 mm External Dimensions
Internal Thin-Layer Slit Size	8.0 mm (Width) × 6.5 mm (Height) × 1.0 mm (Pathlength / Gap)
Included Reference Electrode	Ag/AgCl Electrode (∅ 3.0 mm shaft)
Included Counter Electrode	Platinum (Pt) Wire Electrode (∅ 0.5 mm)

Parameter	Specification Details (Model: PL-DJ05)
Included Working Electrode	Platinum (Pt) Mesh Electrode (Active Area: 6 mm × 7 mm)
Optional Working Electrodes	Glassy Carbon (GC) Disc (∅ 3.0 mm), Gold (Au) Disc (∅ 3.0 mm)