Ptfe Photoelectrochemical Cell With Quartz Window For Photoelectrolysis And Electrocatalysis Testing

Item Number: PL-DJ24

Introduction

Engineered for high precision research, this premium PTFE photoelectrochemical cell features a high transmittance quartz window, a customizable active area, and a secure screw compression seal, ensuring unparalleled chemical resistance and stable electrical contacts during demanding photoelectrocatalytic analyses.

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Application	Description	Key Benefit
Photoelectrochemical (PEC) Water Splitting	Evaluation of novel photoanodes (e.g., TiO2, BiVO4, Fe2O3) for hydrogen and oxygen evolution under simulated sunlight.	Extreme chemical resistance to highly basic electrolytes (e.g., 1M KOH) combined with ultra-high light transmission for maximum quantum yield.
Solar Fuel and CO2 Reduction Studies	Investigation of gaseous carbon dioxide conversion into chemical fuels like methanol, carbon monoxide, or formic acid at illuminated interfaces.	Hermetic sealing prevents gas leakage, ensuring precise measurement of gaseous product yields and faradaic efficiencies.
Photocatalytic Pollutant Degradation	Monitoring the photo-induced decomposition of organic dyes, pharmaceutical residues, and toxic industrial pollutants in aqueous solutions.	The chemically inert PTFE housing prevents dye adsorption on cell walls, ensuring all concentration changes are purely catalytic.
Dye-Sensitized Solar Cell (DSSC) Diagnostics	Performance testing of liquid-state dye-sensitized solar devices under monochromatic or broad-spectrum solar illumination.	Easily accommodates diverse conductive glass substrates (FTO/ITO) while providing highly stable, low-noise electrical connections.
Semiconductor Bandgap Characterization	High-precision measurement of flat-band potential, carrier concentration, and donor/acceptor levels using Mott-Schottky analysis under illumination.	Maintains a stable three-electrode spatial geometry to ensure highly reproducible electrochemical impedance spectroscopy (EIS) data.
Photo-Electrochemical Corrosion Studies	Long-term testing of protective coatings on metal alloy substrates under concurrent chemical exposure and aggressive light irradiation.	Solid PTFE construction resists pitting and degradation, allowing continuous exposure to corrosive saline and acidic media without cell breakdown.

Parameter Specifier	Technical Details & Standard Configurations
Product Item Number	PL-DJ24
Cell Classification	Photoelectrochemical (PEC) Cell
Chamber Body Material	High-Purity Virgin Polytetrafluoroethylene (PTFE)
Optical Window Material	Premium Optical Quartz Glass
Quartz Window Transmittance	≥95% across ultraviolet and visible light spectrum (UV-Vis)
Standard Exposure Area	1.0 cm² (Default calibrated aperture)
Aperture Customization Range	Customizable from 0.25 cm² to 5.0 cm² upon request
Working Electrode Compatibility	Accepts non-standard, flat samples (must completely cover the defined aperture)
Reference Electrode Spec	Silver/Silver Chloride (Ag/AgCl) Electrode (Included)

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Counter Electrode Spec	High-Purity Platinum (Pt) Wire Electrode (Included)
Sealing Mechanism	Rear-mounted axial screw-in compression system
Electrochemical Connection	Dual quick-connect terminals (Orange and Red) for imported workstations
Electrolyte Operating Volume	Standard 50mL to 150mL (Vessel size customizable)
Chemical Compatibility	Fully resistant to HF, concentrated H_2SO_4, NaOH, KOH, and organic solvents
Operating Temperature Range	-50°C to +150°C