Corrosion Resistant Ptfe Photoelectrochemical Cell High Purity All Ptfe Three Electrode Test Cell With Quartz Window

Item Number: PL-DJ22

Introduction

High purity PTFE photoelectrochemical cell designed for precise three electrode testing featuring an ultra high transmission detachable quartz window robust leakproof sealing and customizable volumes from thirty to five hundred milliliters for advanced laboratory research and chemical analysis

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Application	Description	Key Benefit
Photocatalytic Water Splitting	Evaluating the efficiency of photoanodes under simulated solar light for hydrogen and oxygen evolution reactions.	High quartz transmittance (>95%) ensures maximum light utilization, while the gas-tight environment permits accurate gas chromatography headspace measurements.
Carbon Dioxide Reduction	Testing novel electrocatalysts in highly alkaline or complex organic carbonate electrolytes to convert CO2 into valuable synthetic fuels.	Total PTFE chemical resistance prevents degradation from harsh reaction intermediates and eliminates trace metal impurities that skew catalytic activity.
Semiconductor Characterization	Performing photoelectrochemical impedance spectroscopy and Mott-Schottky analysis on advanced thin-film semiconductors and 2D materials.	The 360-degree rotating lid ensures perfect parallel alignment between the semiconductor surface and the incoming light source for reproducible data.
Acidic/Alkaline Fuel Cell Testing	Stress-testing electrocatalyst materials under extreme pH conditions, including hot concentrated phosphoric acid or potassium hydroxide.	Pure PTFE construction operates stably across the entire pH range without corrosion, securing long-term structural integrity and steady baseline currents.
High-Purity Trace Analysis	Performing anodic stripping voltammetry or trace metal detection where ultra-low detection limits are required.	Zero silica or metal leaching from the cell body ensures that background noise remains minimal, maximizing analytical sensitivity and accuracy.
Corrosion and Coating Analysis	Assessing the protective performance of specialized polymer, ceramic, or metallic coatings applied to non-standard metal sheet substrates.	Flexible back-screw clamping accommodates varying sample thicknesses and types directly, avoiding the need to cut or destroy critical testing coupons.

Parameter	Specification Details (Model PL-DJ22)
Base Model Number	PL-DJ22
Cell Body Material	High-Purity Virgin Polytetrafluoroethylene (PTFE)
Window Material	High-Purity Quartz Glass (Detachable for cleaning/replacement)
Optical Transmittance	≥ 95% (Optimized for UV-Vis spectrum)
Standard Active Aperture Area	1.0 cm^2 (Custom sizes available upon request)
Working Electrode Compatibility	Non-standard sheet samples, thin films, conductive glass (FTO/ITO)
Electrode Clamping Method	Rear-tensioning screw with compressive seal against the aperture
Lid Design	Double-layered with 360° rotatable PTFE inner core
Electrode Lead Connections	Gas-tight, internal plug-in jack terminals (audio-jack style)
Sealing System	Threaded outer PTFE collar seal and compression O-rings

Parameter	Specification Details (Model PL-DJ22)
Electrolyte Volume Range	30 mL to 500 mL (Standard options: 30mL, 50mL, 100mL, 250mL, 500mL; bespoke volumes available)
Atmosphere Control	Built-in sub-surface aeration/purging tube for gas-saturated trials
Optional Configurations	Additional sealed sampling ports, jacketed cell bodies for temperature control