

Cr2016 In Situ Xrd X Ray Analysis Double Sided Window Coin Cell Battery Case

Item Number: FZ08



Introduction

Engineered for high precision in situ battery material research this CR2016 double sided Kapton window coin cell case enables seamless real time X ray diffraction analysis of dynamic crystalline phase transformations in active electrodes during continuous electrochemical cycling operations

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Application	Description	Key Benefit
Operando Phase Transition Tracking	Continuous XRD monitoring of cathode and anode crystal structures during galvanostatic and potentiostatic cycling.	Captures transient intermediate phases and non-equilibrium structural states in real time without cell disassembly.
Solid-State Battery Interface Characterization	High-resolution X-ray penetration through dual windows to observe chemo-mechanical evolution at solid electrolyte-electrode interfaces.	Detects interface void formation, interphase layer growth, and structural strain under operational compression.
Synchrotron Radiation Beamline Studies	High-flux transmission and grazing-incidence XRD experiments conducted at national synchrotron light sources.	Delivers high signal-to-noise data under high-intensity X-ray beams without degrading the polyimide window membrane.
High-Voltage Cathode Degradation Analysis	Evaluating phase transitions, oxygen release structural collapse, and transition metal dissolution in high-voltage materials.	Aluminum cathode coating prevents current collector corrosion at high potentials (>4.5V vs. Li/Li+), isolating active material mechanics.
Anode Intercalation & Plating Investigations	Observing staging mechanisms in graphite, silicon-alloying volume changes, and the onset of dendrite formation on metallic anodes.	Allows direct structural differentiation between reversible intercalation compounds and irreversible dead metal deposition.
Fast-Charging Dynamic Phase Mapping	Analyzing rapid structural shifts and thermal-structural strain in battery electrodes subjected to high C-rate cycling protocols.	Provides clear diffraction peak evolution at high temporal resolution without mechanical failure of the sealed cell casing.

Parameter	Specification Details (FZ08)
Product Identifier	FZ08
Product Classification	In-Situ X-Ray Analysis Double-Sided Window Coin Cell Case
Standard Form Factor	CR2016 Profile
Casing Outer Dimensions (Diameter x Height)	20.0 mm x 1.6 mm
X-Ray Window Configuration	Double-Sided (Cathode Shell & Anode Shell Windows)
Window Aperture Diameter	Approximately 10.0 mm
Window Membrane Material	High-Purity Polyimide (Kapton) Film
Polyimide Membrane Thickness	0.18 mm
Cathode Surface Treatment	High-Purity Aluminum Coating
Cathode Coating Layer Thickness	< 0.01 mm (< 10 μm)
Unit Weight (Per Assembly)	Approximately 0.25 oz (7.0 g)
Primary Analytical Application	In-situ and Operando XRD Crystal Structure & Phase Analysis

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Standard Package Quantity	5 complete sets per package