Coulometric Karl Fischer Moisture Titrator With Headspace Karl Fischer Oven For Trace Water Analysis

Item Number: DS20

Introduction

Optimize trace water determination with this automated coulometric Karl Fischer titrator and headspace oven system, engineered for battery cathode materials, electrolytes, and sensitive solids requiring precise moisture quantification, GLP compliance, and high throughput laboratory efficiency.

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Application	Description	Key Benefit
Battery Cathode and Anode Active Materials	Thermal extraction and titration of trace structural or adsorbed moisture in Li-ion electrode powders (LFP, NCM, graphite).	Prevents hydrofluoric acid generation and cell degradation by ensuring sub-ppm moisture verification prior to slurry mixing.
Battery Liquid Electrolyte Verification	Direct coulometric injection testing of non-aqueous organic carbonate electrolytes and functional additives.	Delivers rapid microgram-level quantification without thermal volatility side reactions, maintaining strict electrochemical stability standards.
Polymeric Battery Separators	Thermal desorption of residual surface and internal moisture from porous polyolefin and coated separator films.	Ensures uniform dielectric properties and eliminates vapor expansion hazards during cell formation and sealing.
Solid-State Electrolytes and Precursors	Enclosed headspace extraction of moisture from air-sensitive sulfide, oxide, or polymer solid electrolyte powders.	Protects reactive compounds from atmospheric exposure while obtaining reliable moisture content down to trace detection limits.
Pharmaceutical Active Ingredients (APIs)	Headspace analysis of thermally stable solid powders, excipients, and lyophilized drugs with low moisture solubility.	Eliminates sample dissolution issues and side reactions with Karl Fischer reagents, meeting pharmacopeia testing standards.
Technical Polymers and Engineering Plastics	Desorption moisture analysis of hygroscopic pellets, polyamides, and resin compounds prior to injection molding.	Prevents hydrolytic polymer degradation and structural voids in finished high-performance engineering components.
Fine Chemicals and Industrial Solvents	Routine quality control screening of anhydrous solvents, reagents, and specialty chemical formulations.	Fast, reagent-efficient testing with maximum titration speeds up to 2.24 mg H2O/min for accelerated batch turnaround.

Parameter	Coulometric Titrator Unit	Headspace Karl Fischer Oven Unit
Item Identifier	DS20-Titrator	DS20-Oven
Measurement Method	Coulometric Karl Fischer Titration	Headspace Thermal Extraction / Carrier Gas Evaporation
Measurement Range	10 µg to 200 mg H2O	Applied to solid samples compatible with 10 µg – 200 mg range
Maximum Titration Speed	2.24 mg H2O / min	Dependent on sample outgassing kinetics
Display & User Interface	Color Touchscreen with dynamic "Moisture–Time" curve	Digital control panel for temperature & flow settings
Statistical Functions	Mean, Absolute Standard Deviation, Relative Standard Deviation (RSD)	Process status tracking and timing indicators
Regulatory Compliance	GLP, ISO 900x compliant reporting	GLP, ISO 900x workflow integration
External Interface	Balance connection for automated sample weight acquisition	Automated initiation triggering upon cycle start
Operating Power Supply	220 VAC	220 VAC
Operating Temperature	0 °C to 40 °C	0 °C to 40 °C
Operating Relative Humidity	< 85% RH	< 85% RH

Parameter	Coulometric Titrator Unit	Headspace Karl Fischer Oven Unit
External Dimensions (W × D × H)	178 mm × 138 mm × 311 mm	280 mm × 450 mm × 460 mm
Equipment Net Weight	3 kg	12 kg