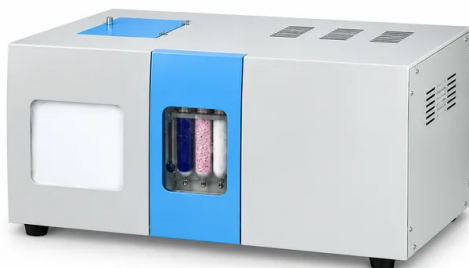


Integrated Rapid Automatic Hydrogen Analyzer For Coal And Solid Fuels

Item Number: KT-TE35



Introduction

Engineered for industrial coal laboratories, this integrated rapid automatic hydrogen analyzer delivers precise coulometric hydrogen and gravimetric carbon measurements. Featuring dual zone heating, rapid test cycles, and automated sample delivery, it guarantees superior analytical accuracy and reliable quality control.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Generation Fuel Testing	Determining precise hydrogen concentrations in pulverized coal feeds to accurately calculate net calorific value (lower heating value) and boiler combustion efficiency.	Prevents boiler heat loss miscalculations, optimizes fuel-to-air ratios, and reduces unplanned combustion anomalies in continuous power generation.
Commercial Coal Grading & Mining QA/QC	Performing rapid elemental hydrogen and carbon profiling on run-of-mine lignite, bituminous coal, and anthracite across processing plants and shipment hubs.	Delivers fast 10-minute turnaround per sample, facilitating rapid commercial valuation, trade contract verification, and compliance with GB/T476-2008 standards.
Metallurgical Coke Production	Monitoring residual volatile matter and hydrogen content in metallurgical coking blends, pitch binders, and blast furnace pulverized coal injection (PCI) fuels.	Ensures structural coke strength, minimizes blast furnace permeability issues, and maintains stringent carbon mass balances across ironmaking operations.
Coal Water Slurry (CWS) Formulation	Analyzing organic hydrogen fractions in homogenized coal-water suspensions and additive blends used in gasification and industrial boiler applications.	Enables precise energy content verification in slurry mixtures despite variable water content, supporting stable burner operation and flame retention.
Biomass & Solid Alternative Fuel Analysis	Evaluating organic elemental composition in agricultural biomass, densified wood pellets, and refuse-derived fuels (RDF) intended for co-combustion facilities.	Supplies crucial stoichiometry data for combustion air staging and carbon dioxide emission reporting without equipment modification.
Independent Commercial Inspection Laboratories	Running high-volume, automated carbon and hydrogen certifications for third-party inspection agencies and custody-transfer compliance auditing.	Maximizes sample throughput via simultaneous carbon absorption and integrated reporting, eliminating manual titration drift and operator-induced errors.

Specification Parameter	Value / Operational Characteristic (KT-TE35)	Engineering Details & Standards
Model Item Identifier	KT-TE35	Unified product code for high-throughput carbon and hydrogen analysis
Governing Standard	GB/T476-2008	Standard test method for determination of carbon and hydrogen in coal
Applicable Specimen Types	Lignite, bituminous coal, anthracite, coal water slurry, solid organics	Broad material compatibility across commercial solid fossil fuels
Hydrogen Measurement Principle	Combustion conversion followed by P2O5 coulometric electrolysis	Water vapor reacts to form metaphosphoric acid; quantified by Faraday charge
Carbon Measurement Principle	High-temperature oxidation followed by gravimetric CO2 absorption	Selective chemical absorption reagent gain determines total carbon mass
Hydrogen Measurement Range	0.00% to 20.00%	High sensitivity across low-rank and enriched hydrocarbon solids
Carbon Measurement Range	0.00% to 100.00%	Wide dynamic range suitable for high-purity carbon materials

Specification Parameter	Value / Operational Characteristic (KT-TE35)	Engineering Details & Standards
Measurement Precision & Accuracy	Fully compliant with GB/T476-2008 tolerances	Demonstrates excellent intra-batch repeatability and inter-batch reproducibility
Analysis Duration (Hydrogen)	10 minutes	Rapid cycle time optimized for high-volume quality control laboratories
Analysis Duration (Carbon)	15 minutes	Efficient gravimetric measurement integrated into total testing cycle
Combustion Furnace Temperature	850°C ± 3°C	Ensures complete oxidation of volatile matter and fixed carbon fractions
Conversion Furnace Temperature	350°C ± 3°C	Catalytic decomposition and moisture conditioning zone
Temperature Control Precision	±1°C	Microprocessor-controlled closed-loop PID regulation
Heating Ramp Rate	25°C to 30°C/min	Rapid initial warm-up minimizing system pre-test downtime
Combustion Tube Specifications	Length: approx. 90 cm; High-purity sealed quartz	Excellent thermal shock resistance and airtight gas containment
Sample Delivery System	Internal motorized propulsion mechanism	Moves sample within sealed quartz tube to prevent atmospheric gas infiltration
Electrolytic Cell Dimensions	Length: ~10 cm; Inner Diameter: ~5 mm; Outer Diameter: ~8 mm	Precision-machined borosilicate glass with active external heat dissipation
Electrode Film Coating	Phosphorus pentoxide (P2O5) active reagent layer	Uniform inner wall coating for quantitative water vapor capture
Electrolytic Cell Cooling	Forced-convection heat dissipation assembly	Prevents thermal overload during high-current peak electrolysis periods
Specimen Particle Size	80 mesh (0.2 mm)	Standard fine milling requirement for complete combustion kinetics
Specimen Capacity	Single sample per analytical run (1 sample/cycle)	Streamlined sequential sample workflow with dedicated carbon absorber unit
Film Coating Electrolysis Voltage	10 V DC	Dedicated pre-conditioning voltage for stable reagent film preparation
Operational Electrolysis Voltage	24 V DC	Standard working voltage ensuring constant electrochemical conversion
Maximum Electrolysis Current	≤ 600 mA	Peak electrochemical current capacity handling high-moisture combustions
End-Point Electrolysis Current	≤ 65 mA	Automatic cutoff threshold confirming complete quantitative titration
System Architecture & Modules	Main console, O2 purification, combustion, cell, integrator, absorber	Fully integrated modular platform eliminating external interconnect piping
Data Display & Reporting	Automated digital LED display and built-in micro-printer	Displays real-time operational status and prints finalized certified test logs