

Cement Free Calcium Oxide Rapid Tester Clinker Quality Control Analyzer

Item Number: KT-TE49



Introduction

Accelerate cement quality control with this rapid free calcium oxide tester featuring precision ethylene glycol extraction direct titration three minute test cycles rapid heating and stepless stirring speed for accurate clinker thermal management and comprehensive industrial laboratory compliance testing

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Application	Description	Key Benefit
Rotary Cement Kiln Thermal Control	Rapid quantification of free lime in freshly sampled clinker discharge to adjust fuel feed rates, burner parameters, and kiln temperatures in real time.	Prevents kiln over-burning, reduces specific fuel consumption, and optimizes clinker mineral composition.
Cement Grinding Quality Assurance	Verification of free calcium oxide levels in pulverized clinker before and after blending with gypsum, blast furnace slag, or fly ash.	Guarantees compliance with national and international soundness standards, preventing catastrophic expansion in cured concrete.
Clinker Soundness and Durability Testing	Routine screening of clinker batches to identify delayed hydration risks caused by residual crystalline free lime expansion.	Eliminates volumetric instability, cracking, and structural failures in downstream commercial concrete applications.
Alternative Fuel and Raw Material (AFR) Trials	Monitoring combustion and calcination behavior during experimental fuel switching (e.g., biomass, refuse-derived fuels) in cement production lines.	Rapidly assesses the thermal impact of non-traditional fuels on clinker formation without risking substandard output.
Third-Party Building Material Certification	Standardized laboratory evaluation of commercial cement shipments conducted by accredited testing centers and inspection agencies.	Delivers audit-ready, highly reproducible analytical results with an ultra-low standard deviation of 0.064%.
Academic and Industrial Research	Investigation of mineral phase transformations, burnability kinetics, and novel low-carbon cement formulations in university laboratories.	Provides high-throughput sample screening, allowing researchers to evaluate dozens of synthesis iterations per day.

Parameter	Specification Details
Product Item Number	KT-TE49
Analytical Target	Uncombined Free Calcium Oxide (f-CaO)
Analytical Principle	Ethylene glycol extraction - benzoic acid direct titration / electrical conductivity determination
Extraction & Testing Time	3 minutes (3 min)
Analytical Accuracy (Standard Deviation)	0.064%
Average Heating Rate	60 °C/min
Motor Agitation Mechanism	Continuous stepless speed regulation
Maximum Power Consumption	300 W
Operating Voltage / Frequency	220 V ± 10% AC, 50 Hz
Sample Compatibility	Portland cement clinker, blended cements, hydraulic binders, raw meal blends
Reaction Medium	Anhydrous ethylene glycol (reagent grade)
Primary Reagent	Standardized benzoic acid solution / indicator system
Housing Construction	Heavy-gauge steel with chemically resistant electrostatic powder coating

Parameter	Specification Details
Operational Environment	10 °C to 40 °C ambient temperature, relative humidity < 85% non-condensing