

Coal Reactivity Determination Apparatus And Carbon Dioxide Activity Analyzer For Coal And Coke Testing

Item Number: KT-TE28

Introduction

Discover high precision coal reactivity determination apparatus engineered for accurate CO₂ chemical reactivity testing of coal and coke featuring rapid heating to 1500C exceptional thermal stability and full compliance with strict industrial coal gasification standards.

[Learn More](#)



Application	Description	Key Benefit
Metallurgical Coke Reactivity Indexing	Evaluating the chemical reactivity of blast furnace coke and foundry coke towards CO ₂ under simulated reduction shaft temperatures	Accurately predicts post-reaction coke strength, minimizes coke degradation in blast furnaces, and optimizes hot metal production efficiency
Modern Coal Gasification Engineering	Screening feedstock candidates for fluidized bed, entrained flow, and fixed-bed coal gasifiers by quantifying specific reaction rates	Optimizes gasifier oxygen-coal and steam-coal ratios, maximizes syngas (CO + H ₂) output, and prevents unreacted carbon carryover
Pulverized Coal Combustion Optimization	Assessing ignition, flame stabilization, and reduction capabilities of pulverized coal injected into utility boilers and cement kilns	Enhances burn-out efficiency, reduces unburned carbon in fly ash, and provides data for low-NO _x combustion tuning
Chemical Synthesis & Coal-to-Chemicals	Benchmarking carbon feedstock reactivity for coal-to-methanol, synthetic ammonia, and coal-to-olefins chemical conversion complexes	Determines process operating conditions, reduces total coal feed consumption per ton of chemical product, and improves yield consistency
Geological Exploration & Core Profiling	Categorizing newly prospected coal seam samples based on chemical stability, reactivity rank, and prospective commercial utility	Delivers reliable standardized classification data for resource asset valuation and long-term mining utilization roadmaps
Thermal Power Plant Fuel Blending	Testing various low-rank and high-rank coal blends to anticipate combustion kinetics and reactivity differentials inside steam generators	Prevents boiler slagging, optimizes flame temperature profiles, and reduces overall auxiliary fuel requirements
Carbon Materials & Electrode Synthesis	Measuring the CO ₂ gasification reactivity of artificial graphite, petroleum coke, and carbon electrode composites at elevated temperatures	Ensures high structural density and thermal corrosion resistance for electrodes used in electric arc furnaces and electrolysis cells

Parameter	Specification (Model: KT-TE28)
Product Identifier	KT-TE28
Maximum Furnace Operating Temperature	1500°C
Sustained Operational Temperature Range	1200°C to 1300°C
Heating Rate	20°C to 25°C/min
Constant Temperature Zone Length	100 mm
Constant Temperature Zone Uniformity	Δt < ±10°C
Heating Element Configuration	Silicon carbide tube (SiC)
Silicon Carbide Tube Dimensions	Outer Diameter: 45 mm, Inner Diameter: 35 mm, Total Length: 500 mm, Central Heated Length: 100 mm, Terminal Length: 40 mm (φ45/35×500/100, 40 mm)
Temperature Sensing Element	Platinum Rhodium-Platinum Thermocouple (Pt-Rh/Pt, Type S)

Parameter	Specification (Model: KT-TE28)
Thermocouple Temperature Measurement Range	0°C to 1600°C
Compliance Standards	GB/T 220-2001 (Determination of chemical reactivity of coal to carbon dioxide)
Power Supply Voltage	AC 220V ± 10%, 50/60 Hz
Operational Power Consumption	4 kW to 5 kW
Reaction Gas Compatibility	Carbon Dioxide (CO ₂), Inert Purge Gas (N ₂ /Ar)
Test Media Application	Bituminous coal, anthracite, lignite, semi-coke, blast furnace coke