Automated Microcomputer Coal Ash Fusibility Determinator Ash Fusion Tester

Item Number: KT-TE47

Introduction

Optimize coal combustion and gasification safety with this automated microcomputer ash fusion tester featuring real time CCD imaging robust molybdenum disilicide heating up to 1520C and intelligent four point characteristic temperature identification for high throughput industrial coal testing laboratories

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Application	Description	Key Benefit
Coal-Fired Power Plant Combustion	Monitoring pulverized coal ash fusion behavior to assess slagging potential on furnace walls, superheaters, and boiler heat transfer tubes during continuous steam generation.	Prevents catastrophic boiler slag build-up, optimizes soot-blowing schedules, and minimizes unscheduled shutdowns caused by severe wall fouling.
Coal Gasification and Syngas Production	Determining the flow temperature (FT) and softening characteristics of coal feedstock destined for entrained-flow and fixed-bed gasifiers operating under reducing atmospheres.	Ensures smooth, uninterrupted molten slag tapping while preventing refractory erosion or downstream syngas channel blockages.
Metallurgical Coke & Blast Furnace Operations	Characterizing the melting and fusing properties of coal blends utilized in pulverized coal injection (PCI) systems and coking coal evaluation.	Guarantees consistent furnace permeability, reduces unburned char formation, and enhances ironmaking productivity by preventing premature ash agglomeration.
Commercial Inspection & Testing Laboratories	Providing accredited testing and certification services for coal import/export shipments, contractual quality verification, and coal blending facilities according to GB/T 219 standard methodologies.	High-throughput five-sample capacity and automated image archiving deliver indisputable certification reports and auditable digital evidence.
Biomass & Co-Firing Fuel Characterization	Investigating the fusion dynamics, eutectic melting, and lower-temperature sintering behavior of agricultural residues, wood pellets, and biomass-coal blends.	Mitigates high-alkali deposition risks and enables plant operators to formulate safe fuel-blending ratios without risking severe boiler fouling.
Boiler Design & Combustion Engineering	Supplying empirical thermal-deformation data to boilermakers and computational fluid dynamics (CFD) modeling teams for designing furnace firebox geometry and burner configurations.	Supports accurate design of combustion chambers and heat exchanger spacing matched directly to target coal grades and expected slagging behavior.
Coal Washing & Preparation Plant Quality Control	Analyzing clean coal, middlings, and raw coal fractions during mining and beneficiation processes to determine the effect of mineral separation on ash fusibility.	Facilitates strategic coal blending to adjust ash fusion characteristics, maximizing commercial value and fuel marketability.

Parameter Category	Specification Details
Product Item Number	KT-TE47
Operating Temperature Range	Room Temperature to 1520°C
Temperature Control Precision	< ±5°C
Heating Rate Profile	Strictly compliant with GB/T 219-1996 standard ramp rate requirements
Test Atmosphere Capability	Weak reducing atmosphere or oxidizing atmosphere
Batch Specimen Capacity	5 single samples per analytical cycle (simultaneous multi-sample carriage)
Characteristic Deformation Points	Deformation Temperature (DT), Softening Temperature (ST), Hemispherical Temperature (HT), Flow Temperature (FT)
Heating Core Configuration	Horizontal molybdenum disilicide (MoSi2) heating elements with advanced refractory insulation

Parameter Category	Specification Details
Optical Imaging Technology	High-resolution CCD digital camera with integrated automatic illumination compensation
Optical Inspection Access	Dual-mode inspection: Automated digital CCD capture (right side) and direct manual optical port (left side)
Automated Data Logging Trigger	Automatic image acquisition and temperature-time curve recording starting at ≥ 900°C
Historical Data Storage Capacity	Stores a minimum of 200 complete test datasets, heating curves, and associated photographic sequences
Data Calibration Features	Computer-assisted automated identification with manual image playback and temperature-point fine adjustment
System Hardware Components	Main furnace unit with integrated camera, power supply module, PC workstation, printer, control software
Operating Power Requirements	(220 ± 22) V AC, (50 ± 2.5) Hz single-phase
Maximum Power Consumption	5.0 kW
Governing Test Standards	GB/T 219-1996 (Determination of Coal Ash Fusibility)