

Standard Coal Sample Certified Reference Materials For Proximate And Elemental Analysis

Item Number: KT-BZ



Introduction

Achieve reliable analytical calibration with certified standard coal samples designed for proximate analysis total sulfur determination and calorific value verification. Engineered for high homogeneity and traceability these reference standards ensure dependable quality control across industrial testing laboratories and commercial inspection facilities.

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Application	Description	Key Benefit
Bomb Calorimetry Calibration	Verification and operational calibration of adiabatic and isoperibol oxygen bomb calorimeters for gross and net calorific value determinations.	Delivers certified heat of combustion values to minimize heat capacity measurement errors and ensure contractual energy billing precision.
Total Sulfur Determination	Standardizing infrared absorption sulfur analyzers and tube furnace combustion-titration setups across coal and petroleum coke testing protocols.	Ensures sub-percentage accuracy in total sulfur measurements, safeguarding environmental compliance and flue gas desulfurization control.
Automated Proximate Analysis	Calibrating thermogravimetric analyzers (TGA) and automated proximate analyzers measuring residual moisture, ash yield, and volatile matter.	Replaces multi-step manual muffle furnace gravimetric steps with validated automated routines, speeding up sample batch turnaround.
Elemental (CHNS/O) Analyzer Verification	Serving as organic calibration standards for automated high-temperature combustion elemental analyzers determining carbon, hydrogen, and nitrogen.	Guarantees complete oxidation and stoichiometric balance, providing robust data for ultimate analysis, fuel blending, and greenhouse gas calculations.
Ash Fusibility Testing	Validating ash melting microscope systems and optical dilatometers evaluating deformation, softening, hemispherical, and fluid temperatures.	Standardizes high-temperature ash deformation behavior assessment, mitigating slagging, fouling, and corrosion risks in industrial boilers.
Trace Element and Halogen Profiling	Validating pyrohydrolysis, ion chromatography, and ICP-MS procedures for hazardous trace elements including fluorine, chlorine, mercury, and arsenic.	Accurately identifies toxic emissions precursors, facilitating adherence to clean air standards and emission permit regulations.
Inter-Laboratory Proficiency Testing	Deploying blinded samples in round-robin testing programs to evaluate instrument performance and operator competency across multi-facility operations.	Pinpoints laboratory systematic bias, maintains accreditation compliance, and drives overall quality control alignment across regional laboratories.
Metallurgical Coking Coal Evaluation	Benchmarking raw coal feedstocks destined for coke oven batteries in steel manufacturing operations.	Correlates petrographic indices, volatile yield, and fixed carbon data with coke strength and reactivity parameters for enhanced process control.

Specification Parameter	KT-BZ-CAL (Calorific Standard)	KT-BZ-SUL (Sulfur Standard Series)	KT-BZ-PROX (Proximate Standard)	KT-BZ-ULT (Ultimate Standard)	KT-BZ-AFT (Ash Fusibility Standard)
Base Matrix Type	Bituminous Coal	Bituminous / Anthracite	High/Medium Volatile Coal	Cleaned Bituminous Coal	Siliceous / Aluminous Ash Coal
Certified Gross Calorific Value (Q _{gr,d})	28.50 - 32.50 MJ/kg (±0.12 MJ/kg)	Reference Parameter Only	26.00 - 30.00 MJ/kg (Informational)	29.00 - 33.00 MJ/kg (Informational)	Not Applicable

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Certified Total Sulfur (St,d)	0.50% - 1.20% ($\pm 0.03\%$)	Low: 0.30% - 0.70% ($\pm 0.02\%$) Med: 1.00% - 2.00% ($\pm 0.04\%$) High: 2.50% - 4.50% ($\pm 0.08\%$)	0.60% - 1.50% ($\pm 0.04\%$)	0.40% - 1.00% ($\pm 0.03\%$)	< 1.00% (Informational)
Certified Ash Yield (Ad)	8.00% - 14.00% ($\pm 0.15\%$)	10.00% - 16.00% (Informational)	Low Ash: 5.00% - 10.00% ($\pm 0.10\%$) High Ash: 15.00% - 25.00% ($\pm 0.18\%$)	8.00% - 12.00% ($\pm 0.12\%$)	> 15.00% ($\pm 0.25\%$)
Certified Volatile Matter (Vdaf)	20.00% - 35.00% ($\pm 0.30\%$)	15.00% - 30.00% (Informational)	Low Vol: 12.00% - 18.00% ($\pm 0.25\%$) Med Vol: 22.00% - 30.00% ($\pm 0.35\%$) High Vol: 32.00% - 42.00% ($\pm 0.40\%$)	25.00% - 35.00% ($\pm 0.30\%$)	Reference Parameter Only
Certified Carbon (Cd)	Reference Parameter Only	Reference Parameter Only	Informational	65.00% - 85.00% ($\pm 0.40\%$)	Not Applicable
Certified Hydrogen (Hd)	Reference Parameter Only	Reference Parameter Only	Informational	3.50% - 5.50% ($\pm 0.15\%$)	Not Applicable
Certified Nitrogen (Nd)	Reference Parameter Only	Reference Parameter Only	Informational	0.80% - 1.80% ($\pm 0.08\%$)	Not Applicable
Ash Fusion Temperatures (Reducing Atmosphere)	Not Certified	Not Certified	Not Certified	Not Certified	Deformation (DT): 1150 - 1300°C Softening (ST): 1200 - 1400°C Hemispherical (HT): 1250 - 1450°C Fluid (FT): 1300 - 1500°C
Particle Top Size	< 0.20 mm (< 200 μ m / 80 mesh)	< 0.20 mm (< 200 μ m / 80 mesh)	< 0.20 mm (< 200 μ m / 80 mesh)	< 0.20 mm (< 200 μ m / 80 mesh)	< 0.10 mm (< 100 μ m / 150 mesh)
Packaging Specification	50 g / Amber Glass Bottle	50 g / Amber Glass Bottle	50 g or 100 g / Amber Glass Bottle	50 g / Amber Glass Bottle	50 g / Amber Glass Bottle
Protective Atmosphere	High-Purity Argon Gas Purge	High-Purity Argon Gas Purge	High-Purity Argon Gas Purge	High-Purity Argon Gas Purge	High-Purity Argon Gas Purge
Shelf Life Stability	24 Months Unopened	24 Months Unopened	24 Months Unopened	24 Months Unopened	36 Months Unopened
Recommended Storage Conditions	15°C to 25°C, Protected from Light and Humidity	15°C to 25°C, Protected from Light and Humidity	15°C to 25°C, Protected from Light and Humidity	15°C to 25°C, Protected from Light and Humidity	15°C to 25°C, Protected from Light and Humidity
Primary Governing Standards	ASTM D5865, ISO 1928, GB/T 213	ASTM D4239, ISO 19579, GB/T 214	ASTM D3172, ISO 17246, GB/T 212	ASTM D5373, ISO 29541, GB/T 476	ASTM D1857, ISO 540, GB/T 219