

Silicon Carbide Sulfur And Carbon Analysis Combustion Tube

Item Number: KT-RG



Introduction

Engineered for precision carbon and sulfur analyzers, this premium silicon carbide combustion tube delivers exceptional thermal shock resistance, uniform thermal distribution, and superior chemical inertness to ensure accurate, repeatable elemental determination across demanding industrial laboratory and metallurgical testing environments.

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Application	Description	Key Benefit
Ferrous Metallurgy Quality Assurance	Rapid combustion analysis of carbon and sulfur concentrations in carbon steel, stainless steel, cast iron, and high-strength ferroalloys.	Delivers fast oxidation kinetics and clean analytical peaks without flux corrosion or tube degradation.
Non-Ferrous Alloy Evaluation	Determination of trace sulfur and residual carbon impurities in copper, nickel, titanium, and aluminum master alloys.	Ensures negligible background blanks and excellent baseline stability for low-ppm elemental detection.
Mining and Geological Mineral Assays	High-throughput decomposition of sulfide minerals, iron ores, limestone, drill cores, and rare-earth concentrate samples.	Resists aggressive sulfur dioxide erosion and abrasive mechanical wear from aggressive molten slag residues.
Coal and Coke Fuel Testing	Rapid elemental combustion of coal, petcoke, graphite, and carbonaceous solid fuels for sulfur emission tracking and calorific calibration.	Provides stable, uniform high-temperature zones that accelerate complete sample burning without incomplete combustion residues.
Cement and Building Material Production	Precise monitoring of sulfate and carbonate fractions in raw meal, clinker, gypsum, and finished hydraulic cements.	Sustains continuous twenty-four-hour operating cycles with minimal thermal drift or unplanned element failure.
Commercial Testing Laboratories	High-capacity multi-matrix testing spanning contract analytical laboratories, research centers, and academic metallurgical institutes.	Maximizes tube service life across variable sample chemistries and multiple consecutive operational shifts.

Property	Value	Reference Standard / Condition
Material Base	Recrystallized Silicon Carbide (SiC)	Sintered High-Purity Refractory Ceramic
SiC Content	≥ 98.5%	Chemical Purity Analysis
Bulk Density	≥ 2.65 g/cm ³	Archimedes Principle
Apparent Porosity	≤ 12.0%	ASTM C20
Maximum Working Temperature	1450°C (Continuous) / 1500°C (Peak)	Inert / Oxidizing Atmosphere
Cold Crushing Strength	≥ 120 MPa	Ambient Temperature (20°C)
High-Temperature Flexural Strength	≥ 95 MPa	Three-Point Bending at 1350°C
Thermal Expansion Coefficient	4.8 × 10 ⁻⁶ / °C	20°C to 1000°C Mean Value
Thermal Conductivity	25 W/(m·K)	Measured at 1000°C
Atmosphere Compatibility	O ₂ , N ₂ , Ar, CO ₂ , Dry Air	Chemically Inert Under Routine Operating Fluxes

Model Number	Outer Diameter (OD, mm)	Inner Diameter (ID, mm)	Heated Length (HL, mm)	Overall Length (OL, mm)	Nominal Resistance (Ω at 1050°C)
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KT-RG-28	28 ± 0.5	20 ± 0.5	180 - 200	350 - 450	2.8 - 3.2
KT-RG-30	30 ± 0.5	22 ± 0.5	200 - 220	400 - 500	2.5 - 2.9
KT-RG-32	32 ± 0.5	24 ± 0.5	200 - 240	450 - 550	2.2 - 2.6
KT-RG-35	35 ± 0.5	25 ± 0.5	220 - 260	500 - 600	1.9 - 2.3
KT-RG-40	40 ± 0.8	30 ± 0.8	250 - 300	550 - 700	1.6 - 2.0
KT-RG-45	45 ± 0.8	35 ± 0.8	280 - 350	600 - 800	1.3 - 1.7
KT-RG-50	50 ± 1.0	40 ± 1.0	300 - 400	700 - 900	1.0 - 1.4