



TOQUARTZ
Tech Specifications

TOQUARTZ® Quartz Combustion Boats Product Catalog

Integrated Engineering & Agile Production
for Demanded Specifications



TOQUARTZ® QUARTZ COMBUSTION BOATS

TOQUARTZ® is a specialized manufacturer of high-purity quartz products based in China, serving global B2B clients in laboratory instrumentation, biomedical research, and environmental monitoring. With in-house engineering support and flexible production capabilities, we offer both standard and custom TOQUARTZ® Quartz Optical Fiber Preform Rods with fast delivery and consistent quality.



Product Overview



TOQUARTZ® high-purity quartz combustion boats are manufactured from premium 99.99% SiO₂ fused quartz material. These precision-crafted sample containers are designed for high-temperature analytical applications requiring exceptional thermal stability, chemical resistance, and dimensional precision.

TOQUARTZ® QUARTZ COMBUSTION BOATS



Key Features

Superior Heat Resistance

- Maximum working temperature: 1200°C
- Low thermal expansion coefficient: $5.5 \times 10^{-7}/^{\circ}\text{C}$
- Excellent thermal shock resistance

High Chemical Resistance

- Resistant to most acids, alkalis, and molten salts
- Inert to most chemical reactions (except HF and hot phosphoric acid)
- Prevents sample contamination during analysis

Ultra-High Purity

- 99.99% SiO₂ content
- Minimal trace elements
- Consistent batch-to-batch composition

Excellent Electrical Properties

- Volume resistivity: $10^{16} \Omega \cdot \text{cm}$ at 500°C
- Superior insulation characteristics
- Suitable for applications involving electrical heating

High Thermal Conductivity

- 120-160 W/m·K thermal conductivity
- Enables efficient heat transfer
- Ensures consistent sample heating

TOQUARTZ® QUARTZ COMBUSTION BOATS



TOQUARTZ

Applications

- **Carbon-Sulfur Analysis**

TOQUARTZ® quartz combustion boats are widely used in carbon-sulfur analyzers for testing metals, alloys, ores, coal, and other materials. Their high-temperature stability and chemical inertness make them ideal for accurate elemental analysis.

- **Thermal Gravimetric Analysis (TGA)**

Our boats provide stable sample containment for TGA applications, where precise weight changes during controlled temperature programs must be measured without container interference.

- **Material Testing & Research**

Research laboratories utilize our quartz boats for high-temperature experiments, sample ashing, and material decomposition studies where sample purity is critical.

- **Environmental Analysis**

Used in environmental testing laboratories for analysis of soil, waste, and other samples requiring high-temperature decomposition or combustion.



TECHNICAL SPECIFICATIONS

I Physical Properties

Property	Value	Unit
Density	2.2	g/cm ³
Maximum Working Temperature	1200	°C
Thermal Expansion Coefficient	5.5×10^{-7}	/°C
Thermal Conductivity	120-160	W/m·K
Hardness (Mohs)	5.5-6.5	-
Fracture Modulus	≥ 350	MPa



TECHNICAL SPECIFICATIONS

II Chemical Properties

Property	Value	Unit
SiO ₂ Content	≥ 99.99	%
Al ₂ O ₃	< 20	ppm
Na ₂ O	< 15	ppm
K ₂ O	< 10	ppm
Fe ₂ O ₃	< 5	ppm
Chemical Resistance	Resistant to most acids, bases, and salts (except HF and hot phosphoric acid)	



TECHNICAL SPECIFICATIONS

III Optical Properties

Property	Value	Unit
Refractive Index (589.3 nm)	1.4585	-
Transparency	Transparent to translucent	-
UV Transmission (254 nm)	> 80	%



SIZE CHART

Model	Length (mm)	Width (mm)	Height (mm)	SiO ₂ Purity (%)
AT-SY-Z1001	50	10	5	99.99
AT-SY-Z1002	50	15	7.5	99.99
AT-SY-Z1003	50	20	10	99.99
AT-SY-Z1004	50	25	10	99.99
AT-SY-Z1005	50	30	12.5	99.99
AT-SY-Z1006	50	40	15	99.99
AT-SY-Z1007	50	50	20	99.99
AT-SY-Z1008	100	10	5	99.99
AT-SY-Z1009	100	15	7.5	99.99
AT-SY-Z1010	100	20	10	99.99
AT-SY-Z1011	100	25	12.5	99.99



SIZE CHART

Model	Length (mm)	Width (mm)	Height (mm)	SiO ₂ Purity (%)
AT-SY-Z1012	100	30	12.5	99.99
AT-SY-Z1013	100	40	15	99.99
AT-SY-Z1014	100	50	20	99.99
AT-SY-Z1015	100	50	25	99.99
AT-SY-Z1016	100	60	30	99.99
AT-SY-Z1017	150	75	25	99.99
AT-SY-Z1018	200	30	15	99.99
AT-SY-Z1019	200	40	20	99.99
AT-SY-Z1020	200	50	25	99.99
AT-SY-Z1021	200	50	25	99.99
AT-SY-Z1022	200	70	35	99.99
AT-SY-Z1023	200	25	12.5	99.99
AT-SY-Z1024	200	80	40	99.99



CUSTOMIZATION OPTIONS

Special Design Features

- Compartmentalized sections
- Handling features
- Tapered edges for specific instruments
- Surface treatments

Performance Optimization

- Enhanced thermal shock resistance
- Specialized surface finish
- Custom purity requirements
- Application-specific designs



USAGE GUIDELINES

Proper Handling

- Use clean tweezers or gloves to prevent contamination
- Distribute sample material evenly across the boat
- Avoid overfilling beyond boat walls
- Inspect for cracks or damage before use

Temperature Considerations

- Maximum heating/cooling rate: 5-7°C per minute
- Maximum working temperature: 1200°C
- Allow complete cooling before handling
- Consider thinner-walled options for rapid cycling applications

Storage Recommendations

- Store in dust-free containers or desiccators
- Use lint-free materials for stacking
- Consider vacuum-sealed packaging for long-term storage
- Maintain inventory tracking system

Cleaning Procedures

- For organic residues: Soak in acetone, rinse with deionized water
- For inorganic compounds: Use appropriate acid solutions (except HF)
- For stubborn residues: Ultrasonic cleaning or heat cleaning (800-1000°C)
- Avoid abrasive cleaners or brushes



ABOUT TOQUARTZ®

TOQUARTZ® is a specialized manufacturer of high-quality quartz glass products for industrial, laboratory, and optical applications. Our factory-direct approach eliminates intermediaries, providing cost-effective solutions with responsive technical support. We welcome small batch orders and offer 24-hour shipping for standard items.

Contact Information

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TOQUARTZ® - Precision Quartz Solutions for Industry and Research

For technical specifications, custom requirements, or pricing information, please contact our sales team.