

SEMICONDUCTOR FUSED QUARTZ GRADES

A unique combination of purity, consistency and fusion quality make IOTA® the only trusted quartz product for semiconductor production. IOTA quartz is the ideal base material for the manufacture of fused quartz crucibles used in the Czochralski (CZ) process. Semiconductor device fabricators count on IOTA's purity and proven reliability for their diffusion and annealing process tubes, wafer etching parts and handling systems. It is the high purity of the IOTA product that enables these parts to withstand the chemical and temperature extremes of wafer processing.

Unimin's high purity quartz portfolio for semiconductor grade applications includes IOTA 4, IOTA 6, IOTA 6-SV, IOTA 8 and IOTA STD-SV. The low alkali content of these products results in fused quartz with high viscosity. This provides a high softening point and low crystallization rate, which extends part life and reduces the overall cost of ownership. Consistently low Boron (B) and minute levels of transition metals help maintain the purity of the silicon during crystal growth and wafer processing.

All IOTA® quartz grades are produced in ISO 9001 certified plants. Raw materials and services associated with the mining and manufacturing are additionally administered under QIPSM, a proprietary quality assurance system designed by Unimin specifically for its mining and mineral processing activities.

IOTA® CHEMICAL ANALYSIS

These Do Not Represent A Specification

	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	P	Ti	Zn
IOTA 4	8	< 0.05	0.7	0.007	0.004	0.3	0.4	0.2	0.07	0.013	1.0	0.002	0.1	1.4	0.01
IOTA 6	8	< 0.05	0.7	0.003	0.001	0.2	0.1	0.2	0.07	0.008	< 0.1	0.002	0.1	1.4	0.01
IOTA 6-SV	8	< 0.05	0.5	0.002	0.001	0.1	< 0.1	0.2	0.02	0.004	< 0.05	0.001	< 0.05	1.3	0.01
IOTA 8	8	< 0.05	0.4	0.001	< 0.001	< 0.05	< 0.05	< 0.05	0.01	0.001	< 0.05	< 0.001	< 0.05	1.3	0.01
IOTA STD-SV	14	< 0.10	0.3	0.004	0.003	0.1	< 0.1	0.5	0.01	0.007	< 0.05	0.001	0.1	1.1	0.01

Typical Values (ppm)

Shipping Point: SPRUCE PINE, North Carolina, USA

FOR ADDITIONAL INFORMATION:

www.IOTAinquiries@unimin.com



PERFORMANCE DISCLOSURE: While the above-information is believed to be accurate, the user's results may vary as site-specific conditions and applications are different and unique. It is the responsibility of the user to investigate and understand all sources of information affecting Unimin product performance; to comply with all laws and procedures applicable to the safe handling and use of Unimin products; and to determine the suitability and performance characteristics of Unimin's products for user's intended use. All products supplied by Unimin Corporation are subject to Unimin's terms and conditions of sale.

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HEALTH HAZARD WARNING: Prolonged inhalation of dust associated with the materials described in this data sheet can cause delayed lung injury including Silicosis, a progressive, disabling and sometimes fatal lung disease. IARC and NTP have determined that crystalline silica can cause lung cancer in humans. Risk of injury is dependent on the duration and level of exposure. Follow OSHA or other relevant safety and health standards for the form of crystalline silica called Quartz. Current safety data sheet, containing safety information, is available and should be consulted before usage.