

OHARA QUARTZ High Quality Silica Glass

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VAD-process Synthetic Fused Silica **SK-1300**

Our Company successfully developed synthetic fused silica SK-1300 as a result of significant improvements made to the conventional VAD (vapor-phase axial deposition) method of optical fiber manufacturing technology.

SK-1300 is extremely high in purity and much lower in OH content than the traditional direct method, thus making it the first synthetic fused silica usable in the semiconductor and liquid crystal display industries.

SK-1300 is the state-of-the-art technology in optical characteristics because it provides a high ultraviolet transmission, no micro inclusion and a solarization resistance, in addition to heat resistance, mechanical strength, and chemical resistance.

These products can be used in a wide variety of industrial applications for semiconductors, optical and all physical or chemical related research featuring these applications:

1. Wafers for various types of devices such as TFT (poly-Si thin-film transistor LCD.), SOI (Silicon on Insulator) etc.
2. Photomask substrates for ultra-LSI and LCD.
3. Reactor furnace tubes, jigs and tools for ULSI manufacturing processes.
4. Electrical-discharge lamp tubes.
5. Optical elements, lenses, mirrors and windows, for ultraviolet and vacuum ultraviolet.

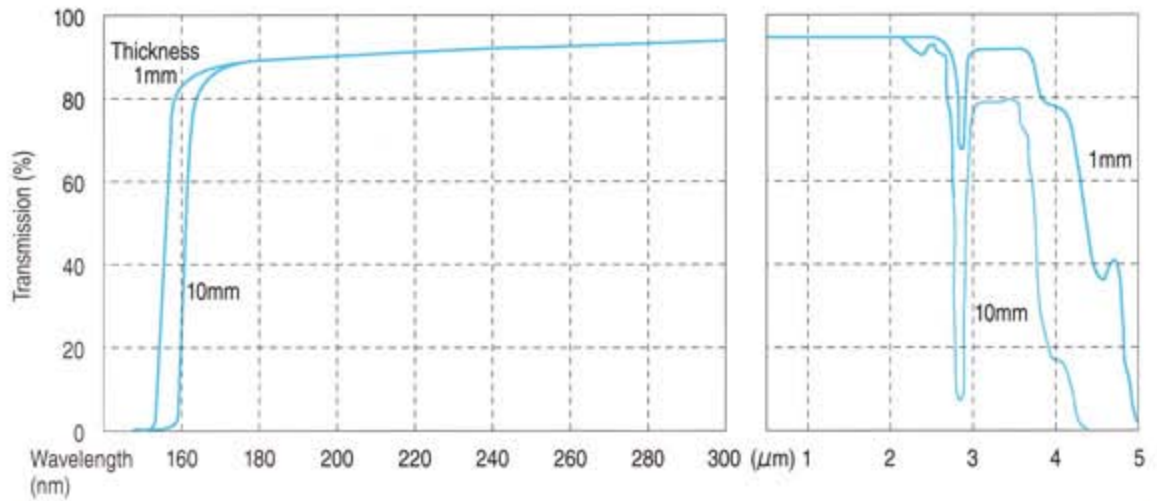
Typical Characteristics

Typical Impurity Analysis	Element		Analytical Value	
	Element	Analytical Value	Element	Analytical Value
ppm	Al	<0.01	Co	<0.01
	Fe	<0.01	Ni	<0.01
	Ti	<0.01	P	<0.01
	Ca	<0.01	B	<0.01
	Mg	<0.01	Na	<0.01
	Mn	<0.01	K	<0.01
	Cr	<0.01	Li	<0.01
	Cu	<0.01	Zr	<0.01
	OH	<200	Cl	<5

Chemical Resistance

Solution	Treatment temperatures	& hours	Weight loss
H ₂ O	95°C	45H	0.0001~0.0002mg/cm ²
1/100 N HNO ₃	115°C	24H	0.005~ 0.01mg/cm ²
5% NaOH	100°C	10H	1.35mg/cm ²

Transmission



Refractive Index

Wavelength (nm)	15°C	25°C	35°C
237.83	1.51525	1.51538	1.51552
248.20	1.50894	1.50907	1.50920
274.87	1.49644	1.49655	1.49667
334.15	1.48027	1.48036	1.48048
365.48 (i)	1.47504	1.47514	1.47524
404.65 (h)	1.47011	1.47021	1.47031
435.83 (g)	1.46719	1.46728	1.46738
546.07 (e)	1.46058	1.46066	1.46075

Optical Qualities

Item	Grade
Bubbles	0~0.03mm ² /100cm ³
Striae	Grade A in one direction (As per Mil-G-174)
Birefringence (Strain)	10nm/cm and under
Fluorescence	Not permitted (Excited wavelength 254nm)

Physical properties

Item	Unit	Value	Item	Unit	Value
Density	g/cm ³	2.201	Coefficient of thermal expansion	cm/cm·°C	5.5×10 ⁻⁷
Young's module	kg/mm ²	7280	Softening point	°C	1700
Poisson's ratio		0.17	Annealing point	°C	1160
Compression strength	kg/mm ²	115	Strain point	°C	1060
Bending strength	kg/mm ²	7.0	Specific heat (26°C)	cal/g·°C	0.176
Tensile strength	kg/mm ²	5.6	Thermal conductivity ratio (26°C)	cal/cm·sec·°C	2.65×10 ⁻³
Torsional rigidity	kg/mm ²	3150	Thermal conductivity ratio (100°C)	cal/cm·sec·°C	3.27×10 ⁻³
Vickers hardness	kg/mm ²	900~1030			
Knoop hardness	kg/mm ²	650~710			