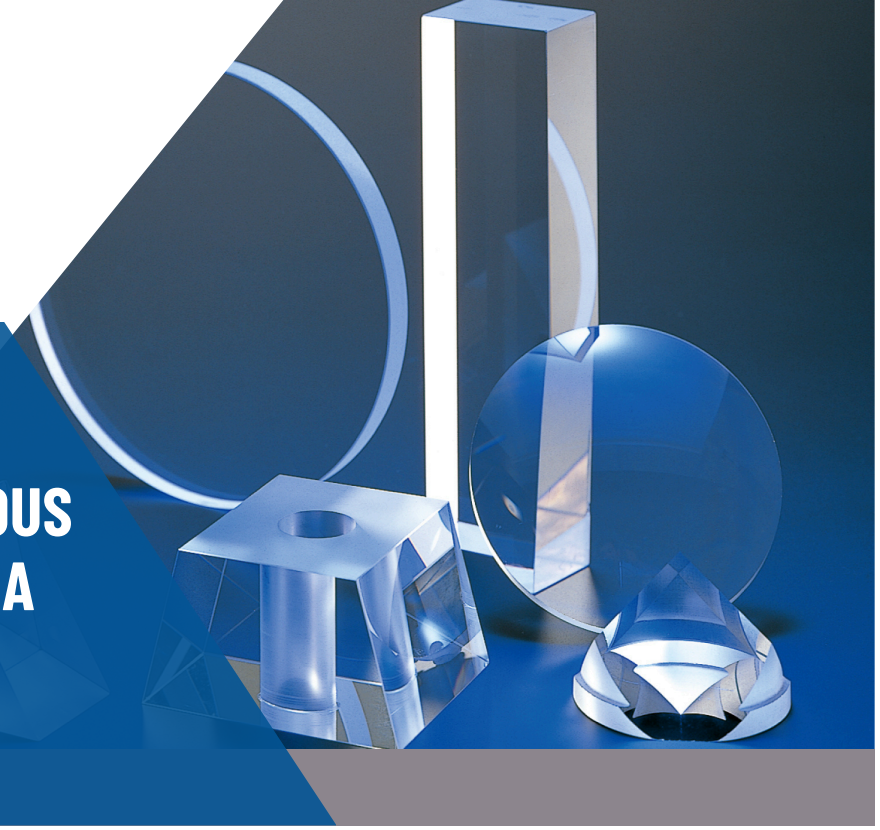
The Future Made Clear

OHARA



VAD-PROCESS ANHYDROUS SYNTHETIC FUSED SILICA

SK-1300

SK-1300 Fused Silica

OHARA 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 thus making it the first synthetic fused silica usable in the semiconductor and liquid crystal display industries. SK-1300 is state-of-the-art in optical characteristics because it provides a high UV transmission, no micro inclusions, and 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. Various devices such as TFT (poly-Si thin-film transistor LCD) and SOI (Silicon on Insulator).
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.

		Element	Analytical Value	Element	Analytical Value
Typical Impurity Analysis	ppb	Al	<10	Co	<10
		Fe	<10	Ni	<10
		Ti	<10	P	<10
		Ca	<10	B	<10
		Mg	<10	Na	<10
		Mn	<10	K	<10
		Cr	<10	Li	<10
		Cu	<10	Zr	<10
	ppm	OH	<200	Cl	<1

	Solution	Treatment Temperatures (°C)	Hours	Weight Loss (mg/cm^2)
Chemical Resistance	H_2O	95	45	0.0001～0.0002
	1/100 N HNO_3	115	24	0.005～0.01
	5% NaOH	100	10	1.35

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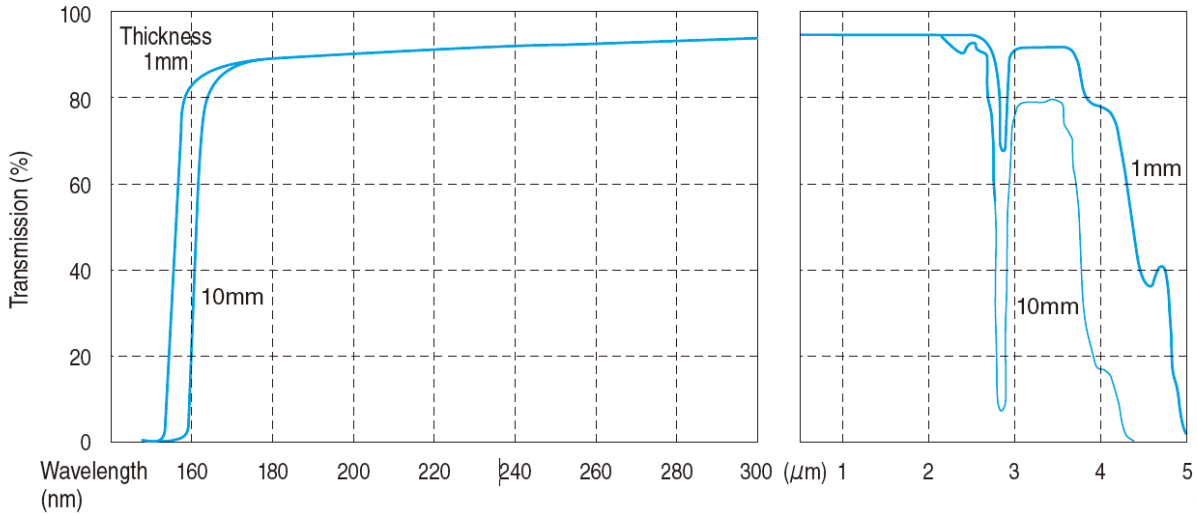
Transmission



Refractive Index

Wavelength (nm, in air)	25°C in air	20°C in air	20-5°C in air Wavelength (nm, in air)	1×10−6／°C dn/dT
365.015(i)	1.47465	1.47459	365.015(i)	11.2
404.656(h)	1.46972	1.46967	404.656(h)	10.8
435.835(g)	1.46680	1.46675	435.835(g)	10.6
486.133(F)	1.46323	1.46318	486.133(F)	10.3
546.075(e)	1.46018	1.46013	546.075(e)	10.1
587.562(d)	1.45857	1.45852	587.562(d)	10.0
656.273(C)	1.45647	1.45642	656.273(C)	9.9
Measuring accuracy	±5×10−6		Measuring accuracy	±0.6×10−6

Optical Qualities

Item	Grade
Bubbles	0～0.03mm²/100cm³
Striae	Grade A in one direction (As per Mil-G-174)
Birefrengence (Strain)	10nm/cm and under
Fluorescence	Not permitted (Excited wavelength 254nm)

Physical Properties

Item	Unit	Value	Item	Unit	Value
Density	g/cm³	2.2	Coefficient of thermal expansion	1/K	5.5×10−7
Young's module	GPa	72.4			
Torsional rigidity	GPa	30.9	Softening point	℃	1600
Poisson's ratio		0.17	Annealing point	℃	1160
Compression strength	GPa	1.1	Strain point	℃	1060
Bending strength	MPa	69			
Tensile strength	MPa	55	Specific heat(25℃)	kJ/kg·K	0.73
Vickers hardness	GPa	8.8～10.1	Thermal conductivity ratio (25℃)	W/m·K	1.3
Knoop hardness	GPa	6.4～7.0	Thermal conductivity ratio (100℃)	W/m·K	1.4

GET IN TOUCH

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