

QUARTZ & SILICA

Quartz glass is an extremely versatile material used in a range of different applications. It has outstanding thermal properties, excellent optical transmission, with good electrical and corrosion performance.

There are two basic ways of making quartz / silica glass:

1. By melting silica grains either by gas or electrical heating (the type of heating affects some optical properties). This material can be transparent or, for some applications, opaque and is normally referred to as quartz or **fused quartz**.

2. By synthesizing the glass from chemicals

This synthetic material, normally referred to as silica or synthetic **fused silica**, has better optical properties and is somewhat more expensive than the other type.

Fused silica has better UV transmission characteristics than fused quartz.

Special grades of fused quartz are available with low OH content - this gives improved IR transmission.

	PROPERTY	UNITS	
GENERAL	Chemical formula	n/a	SiO ₂
	Density	g/cm ³	2.2
MECHANICAL	Design tensile strength	MPa	48
	Design compressive strength	MPa	1100
	Young's Modulus	GPa	72
THERMAL	Max. use temperature	°C	950-1300
	Thermal Conductivity	W/mK	1.4
	Coefficient of Linear Thermal Expansion	10 ⁻⁶ /°C	0.55
ELECTRICAL	Volume Resistance	Ωcm	10 ¹⁶
	Dielectric Constant		3.7
	Dielectric Strength	kV/mm	40

Properties shown are typical values, they are not absolute material properties, and should be used for guidance only. It is recommended that materials and components are tested for their suitability for a specific application.

Typical Applications:

- Windows & Lenses
- Optics & mirror substrates
- Crucibles, trays & boats
- Metrology components

For more information and advice please discuss your application with our sales staff.

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