

Optical material / crystals (Ultraviolet / Infrared)

Material / Specification: IR fused quartz, Low OH, Heraeus for 260-3500nm transmission
Range / Description: OPMU-IRQUARTZ

Saint-Gobain Quartz HS Grade is a high-purity infrared fused quartz which is manufactured by fusion of naturally occurring quartz crystal in an electric vacuum furnace, resulting in a low [OH] (< 5 ppm) material with low bubbles, inclusions and striae.

Due to its low [OH] content, **Saint-Gobain Quartz HS Grade** has excellent optical transmission in the infrared, with a useful range from 260 nm in the UV through to 3500 nm in the infrared.

Saint-Gobain Quartz HS Grade was awarded the **China National Silver Medal** for its excellent quality.

Available Forms

Ingot Ingots and ingot sections are available in a wide variety of sizes and shapes up to a maximum size of 1500 mm x 800 mm x 80 mm and maximum weight of 210 kg

Rod Core drilled rod is available in a wide range of diameters

Components Discs, plates, blocks and special shapes with machined or polished surface finish

Optical Properties

Grade	HS
Bubbles	
Bubble class (DIN 58927)	0..1
Sum of CSA (mm ² / 100 cm ³)	< 0.1
Maximum bubble dia. (mm) (bubbles < 0.1 mm not counted)	0.5
Striae (MIL-G-174A) in functional direction (i.e. direction of use) (The direction of use should be specified at time of enquiry / order)	
	B
Granularity	Faint
Residual strain (nm/cm)	4 - 10
Fluorescence (254 nm excitation)	Blue / Violet
External Transmission including Fresnel reflection losses (10 mm path)	
Infrared (2600 – 2800 nm)	> 85 %
Visible	> 91 %
[OH] Content (ppm)	< 5

- **Saint-Gobain Quartz HS Grade** is a high purity, low [OH] “water-free” (< 5 ppm) natural fused quartz
- Excellent infrared transmission
- Useful transmission range from 260 nm in the UV to 3500 nm in the Infrared
- Excellent visual quality with low bubbles, inclusions and striae
- **HS Grade** fused quartz is available in a wide variety of sizes and forms, including ingots, core-drilled rod and machined/polished components

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Typical Chemical Analysis

Saint-Gobain Quartz HS Grade	
Typical trace elements in ppm	
Al	66
Ca	0.7
Cr	0.02
Cu	< 0.01
Fe	0.1
K	2.7
Li	10
Mg	3.7
Mn	0.02
Na	5.8
Nd	< 0.01
Ti	15.7
Y	< 0.01
Zr	< 0.02
OH	< 5

Thermal Data

Strain Point **	1075°C
Annealing Point **	1140°C
Softening Point **	1730°C

Thermal Expansion
 Coefficient (Average) 0.55×10^{-6}

** Note that these values may vary, depending on thermal history of the glass

Transmission

Typical transmission of Saint-Gobain HS grade fused quartz
 (including Fresnel reflection losses for 10 mm pathlength)

