

# Heraeus



## Opaque Fused Materials OFM 970



Heraeus Quarzglas

# Opaque Fused Materials - OFM 970

## Description

OFM 970 is an opaque quartz glass developed by Heraeus for very high purity application.

The production process primarily produces rotationally symmetrical objects such as tubes. Plates may also be produced by subsequent hot re-forming.

OFM 970 parts have an opaque white appearance due to the inclusion of a large number of extremely fine bubbles and pores.

The inner surface of OFM 970 products is glazed, smooth and non-porous.

The outer surface is fine pored and not glazed.

OFM 970 is a very high purity product. Total contaminants amount to less than 1 ppmw. Technical properties can be improved by doping (e.g. with Al).

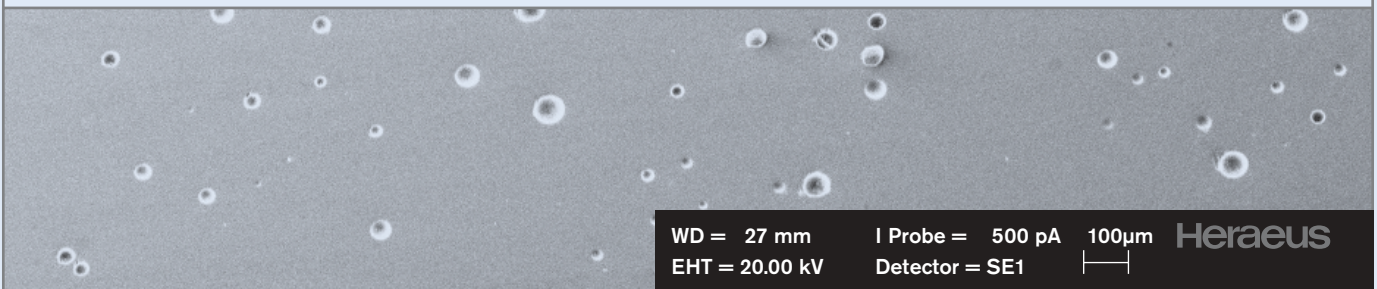
## Applications

OFM 970 is used primarily in high-temperature processes requiring thermal insulation and extremely high purity.

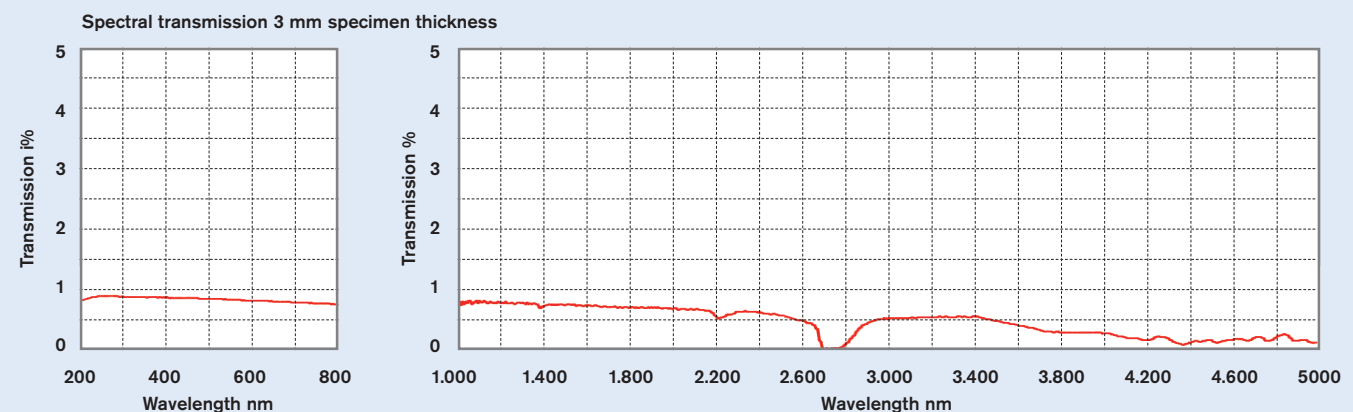
The combination of high purity with specific physical properties make OFM 970 a preferred material for semiconductor and comparable industrial applications. OFM 970 offers new options for innovative applications.

## Technical Specifications

### Typical pore distribution



### Spectral transmission



UV/VIS-SPECTROMETER: PERKIN ELMER Lambda 900 / MEASURE NO.: SYN\_03

IR-SPECTROMETER: PERKIN ELMER FTIR 2000 OPTICA / MEASURE NO.: ROSYN\_03

## Characteristics

- high chemical purity
- extremely low thermal expansion
- high resistance to thermal shock
- high deformation point
- low thermal conductivity
- high resistance to corrosive media
- high resistance to corrosive melts
- low spectral transmission



Characteristics	
Outer appearance	opaque-white
Inner surface	fire-glazed
Outer surface	material specific, fine-pored
Mechanical characteristics	
Density	~ 2,0 – 2,16 g / cm <sup>3</sup>
Modulus of elasticity	~ 6 x 10 <sup>4</sup> N / mm <sup>2</sup>
Compressive strength	~ 460 N / mm <sup>2</sup>
Flexural strength	~ 85 N / mm <sup>2</sup>
Working properties	
Mechanical machining	good
Welding	good
Thermal properties	
Mean linear coefficient of thermal expansion 0 ... 300 °C [1 / K]	~ 0,53 x 10 <sup>-6</sup>
Thermal conductivity [W / m x K] at 38 °C	~ 1,08
Specific heat [KJ / kg x K] at 70 °C	~ 0,78
	at 140 °C ~ 0,86
Service temperature [°C]~ 1.200	
Short term	up to 1400 °C and more
Transmission (see previous page)	
SiO <sub>2</sub> Content	
	> 99,999 %
Crystalline content	
	none, 100% amorphous

Typical dimensions	
Rectangular plates	
Length	to 400 mm
Width	to 200 mm
Thickness	7 – 20 mm
Round plates	
Diameter	to 200 mm
Tubes	
Diameter	180 – 380 mm
Length	to 2.500 mm
Wall thickness	5 – 25 mm
<i>OFM 370 products are made to customer requirements. Additional sizes may be available on request.</i>	

Chemical purity - typical values – [ppbw]					
Li	Na	K	Mg	Ca	Fe
< 10	40	35	10	50	60
Cu	Cr	Mn	Ti	Al	Zr
50	20	< 10	20	10000	10
<i>Testing method: ICP - MS</i>					

Viscosity (typical values)	
Temperature [°C]	Log [poise]
1.150	12,1
1.200	11,6
1.250	11,0

**Heraeus Quarzglas GmbH & Co. KG**  
Division Industrial Technologies  
Postfach 15 54  
63450 Hanau, Germany

Phone + 49 (0) 61 81 / 35-62 91  
Fax + 49 (0) 61 81 / 35-63 11  
e-Mail: sales.git-plr  
@heraeus-quarzglas.com