

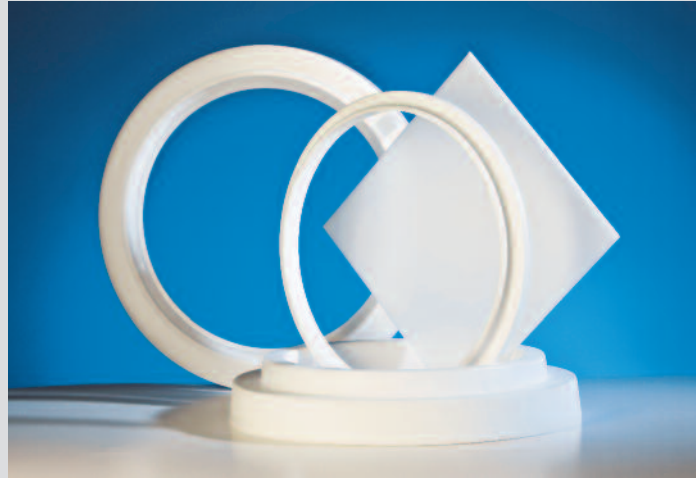
OM 100

Applications

8", 12" and future semiconductor products such as spacers, flanges, plates, thermal insulators as well as IR and temperature screening, irradiation reflecting material, high purity material

Characteristics

Opaque material of very high purity with micron sized pores, diffuse reflection from optical to infrared wavelength, excellent welding properties



OM 100 is an opaque quartz glass. Its applications range from reflective shielding of light – from UV to IR - to homogeneous diffuse lighting. OM 100 has a unique microstructure that comes with many advantages. It consists of evenly distributed micron sized pores in an amorphous opaque quartz matrix. Compared to other opaque materials the pores in OM 100 are smaller, irregularly shaped and therefore more efficient in diffuse scattering of electromagnetic irradiation. Both, the pore size and the opaque matrix make OM 100 the material with the lowest transmission compared to any other available material on the market in semiconductor applications.

OM 100 does not shrink during flame polishing. Additionally it results in a smooth surface without the "orange peel" effect that other opaque materials show. This excellent surface finish guarantees good sealing abilities of OM products.

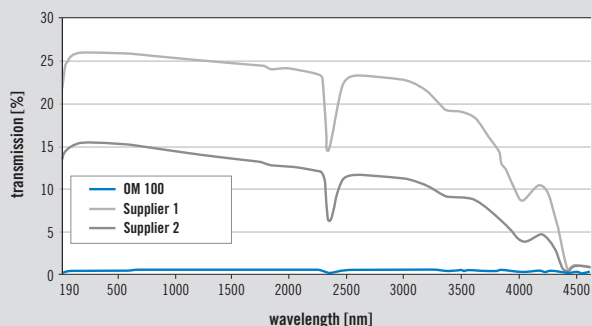
Due to its exceptional microstructure OM 100 retains a smoother surface through acid exposure than other currently available opaque materials allowing more cleaning cycles.

Chemical Purity – Typical trace elements in OM 100 (ppm by weight)

Elements	Al	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ti	Zr	OH
OM 100	15	0.8	<0.01	<0.01	0.1	0.4	0.2	0.05	<0.01	0.2	1.2	0.7	n.s.

Typical Direct Transmission Spectrum

Sample thickness: 1 mm



Dimensions (mm) – Maximum Values

Products	Length / OD	Width / Wall Thickness	Height
Round plate	650	–	60
Square plate	500	500	60
Rectangular plate	850	250	60
Flange	650	30 – 80	60
Flange*	650	30 – 80	60 – 250

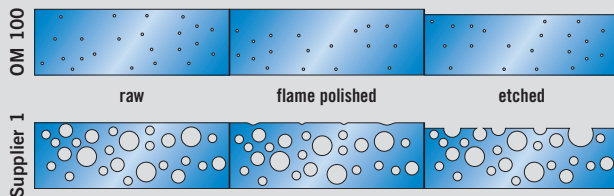
* Individual design upon customer's request

Physical Properties (typical values)

Density	2.15 g / cm ³ ρ < 2.195 g / cm ³
Porosity	< 2,3 %
Pore Size	< 20 μm
Young's modulus	54 kN/mm ²
Bending strength (3 point)	84 N/mm ²

Performance during etching:

OM 100 retains a smoother surface during more etching cycles than competitors' material. The development of the surface roughness is sketched below:



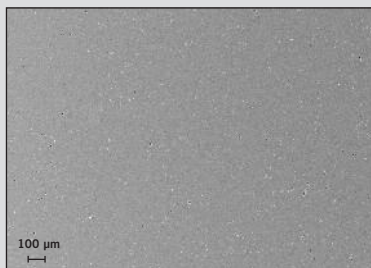
Thermal Properties (typical values)

Temperature [°C]	Viscosity log η [dPa*s]
1250	12.3
1300	11.6
1350	11
1390	10.6
Thermal conductivity [W/(m*K)]	
23	1.3
300	1.55
587	1.90
1103	2.18
Thermal expansion coefficient [10 ⁻⁷ /K]	
50	4.35
100	5.8
200	6.0
1000	5.0
Specific heat [J/(g*K)]	
0	0.72
100	0.85
200	0.95
300	1.02

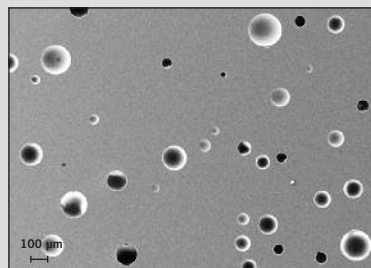
OM 100 owes its excellent performance to its unique microstructure.

The following images illustrate the difference between the various opaque materials on the market and OM 100.

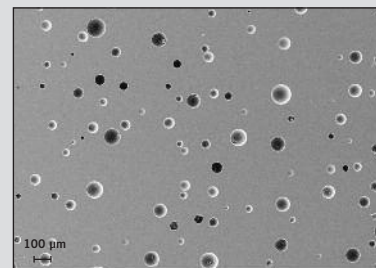
Images taken by scanning electron microscopy:



OM 100



Supplier 1



Supplier 2

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