



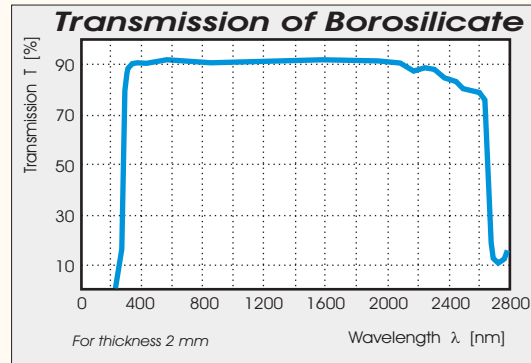
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Borosilicate glass 33

Comparable, known glass types are Duran® by Schott or Pyrex® by Corning.

Borosilicate glass is used where a low thermal expansion index is required.

Products made from Borosilicate glass 33 are well-known for their stability and high thermal shock resistance. The glass has a very low rate of thermal expansion.



The thermal expansion index of Borosilicate glass is close the index of ceramics. The refraction index of Borosilicate glass is close to the index of plastic.

Blank moulded lenses offer the best cost-effectiveness.

Lenses made from Borosilicate glass 33 are lead-free, mercury-free, chromium-free and cadmium-free.

The moulding process used by Moulded Optics GmbH and the Borosilicate glass 33 fulfill :

German "Elektro- und Elektronikgesetz (ElektroG)" §5(1)

**"Restriction on the use of certain hazardous substances in electrical and electronic equipment (RoHS)"
2002/95/EG**

**"Waste Electrical and Electronical Equipment Directive (WEEE)"
2002/96/EG**

Guideline to the RoHS by the European Commission, published in May 2005, §2.2

**Commission Decision of 21 Oct 2005, Annex 3.13, published 25.Oct.2005
2005/747/EC**

Please ask us for the certificate for all the lenses you are buying from MOULDED OPTICS GmbH.

Borosilicate Glass 33		
Refraction Index	n_e	1.473
Refraction Index	n_d	1.471
Abbe Number	n_e	65.41
Abbe Number	n_d	
Coefficient of mean linear thermal expansion	$\rho(20 \dots 300^\circ\text{C})$	$3.25 \cdot 10^{-6} / \text{K}$
Density	$\rho\rho$	2.2 g/cm^3

RoHS/WEEE Cd	✓	RoHS/WEEE Hg	✓	RoHS/WEEE Cr	✓	RoHS/WEEE Pb	✓	RoHS/WEEE PBB	✓	RoHS/WEEE PBDE	✓
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