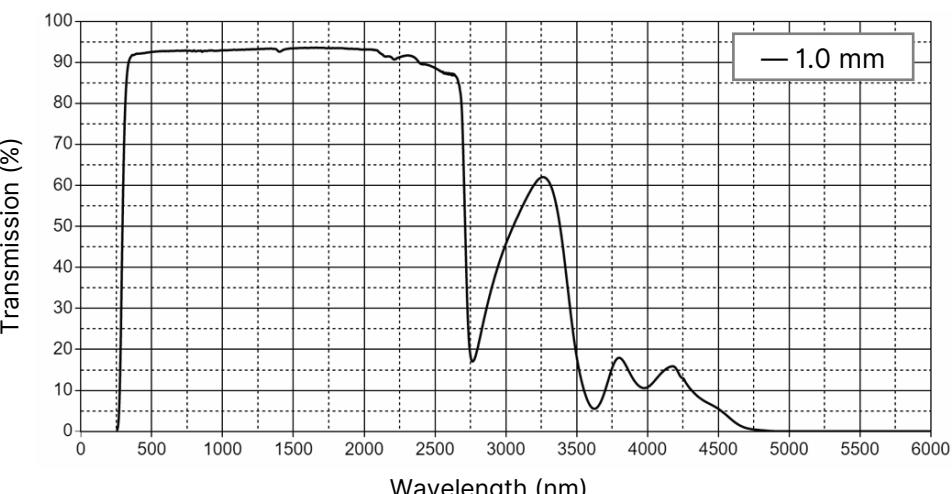


BORO-8330™

Technical Data

Glass Type/Application	Borosilicate glass 3.3 acc. to ISO 3585, chemically highly resistant, high thermal shock resistance. Special applications in the pharmaceutical industry.				
Physical Data (approx. value)	<p>Coefficient of mean linear thermal expansion $\alpha(20^\circ\text{C}; 300^\circ\text{C})$ (ISO 7991) 3.3 10^{-6}K^{-1}</p> <p>Transformation temperature T_g (ISO 7884-8) 525 $^\circ\text{C}$</p> <p>Glass temperature at viscosity η in dPa·s</p> <p>10^{13} (annealing point) (ISO 7884-4) 560 $^\circ\text{C}$</p> <p>$10^{7.6}$ (softening point) (ISO 7884-3) 825 $^\circ\text{C}$</p> <p>10^4 (working point) (ISO 7884-2) 1260 $^\circ\text{C}$</p> <p>Density ρ at 25°C 2.23 $\text{g} \cdot \text{cm}^{-3}$</p>				
Chemical Resistance	<p>Hydrolytic resistance</p> <p>acc. to ISO 719 Class HGB 1</p> <p>acc. to Ph. Eur. Type I</p> <p>acc. to USP Type I</p> <p>acc. to JP fulfilled</p> <p>Acid resistance (DIN 12116) Class S1</p> <p>Alkali resistance (ISO 695) Class A2</p> <p>ASTM E 438 Type I Class A</p>				
Chemical Content (components in approx. weight %)	SiO ₂	B ₂ O ₃	Al ₂ O ₃	Na ₂ O	K ₂ O
	81	13	2	3.5	0.5
	The heavy metal content for the elements lead, cadmium, mercury and hexavalent chromium is below 100 ppm				
Transmission (exemplary spectrum)	 <p>The graph plots Transmission (%) on the y-axis (0 to 100) against Wavelength (nm) on the x-axis (0 to 6000). A solid black line represents a 1.0 mm sample thickness. The curve starts at approximately 92% transmission at 300 nm, remains relatively flat until about 1500 nm, then shows a gradual decline to about 88% at 2500 nm. A sharp absorption edge occurs between 2800 nm and 3000 nm, dropping transmission to around 20%. After this, the transmission increases sharply to a peak of about 62% at 3300 nm, followed by a deep absorption band reaching near zero transmission between 3500 nm and 4000 nm. There are minor fluctuations in transmission between 4000 nm and 5000 nm, with a small peak around 4200 nm and another dip around 4500 nm.</p>				