

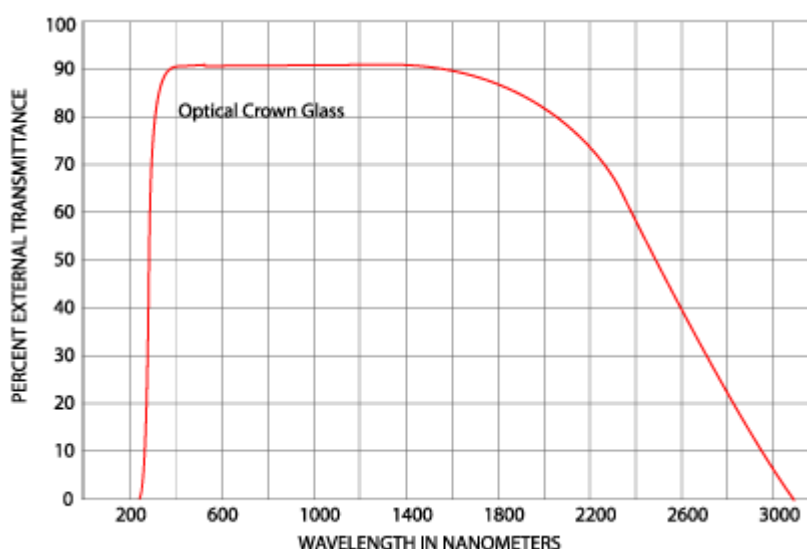
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Material Properties

Optical Crown Glass

In optical crown glass, a low-index commercial-grade glass, the index of refraction, transmittance, and homogeneity are not controlled as carefully as they are in optical-grade glasses such as BK7. Optical crown is suitable for applications in which component tolerances are fairly loose and as a substrate material for mirrors.

Transmittance characteristics for optical crown are shown the figure below. Relevant properties of optical crown are shown in the accompanying table.



External transmittance for 10-mm-thick uncoated optical crown glass

Optical Crown Glass Constants

Glass Type Designation: B270

Abbe Constant: $v_d = 58.5$

Dispersion: $(n_F - n_C) = 0.0089$

Density: 2.55 g-cm^{-3} at 23°C

Young's Modulus: 71.5 kN/mm^2

Specific Heat: $C_p (20^\circ \text{ to } 100^\circ\text{C}) = 0.184 \text{ cal/g-}^\circ\text{C}$

Coefficient of Linear Expansion ($20^\circ \text{ to } 300^\circ\text{C}$): $93.3 \times 10^{-7}/^\circ\text{C}$

Transformation Temperature: 521°C

Softening Point: 708°C

Refractive Index of Optical Crown Glass

Wavelength (nm)	Refractive Index, n	Fraunhofer Designation	Source	Spectral Region
435.8	1.53394	g	Hg arc	Blue
480.0	1.52960	F'	Cd arc	Blue
486.1	1.52908	F	H ₂ arc	Blue
546.1	1.52501	e	Hg arc	Green
589.6	1.52288	d	Hg arc	Yellow

587.6	1.52288	u	He arc	Yellow
589.0	1.52280	D	Na arc	Yellow
643.8	1.52059	C'	Cd arc	Red
656.3	1.52015	C	H ₂ arc	Red

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