

Optical Sapphire

Preformed and prepolished substrates of the optical sapphire are available in sizes up to ca. 500mm in dependence on the orientation.

refraction, transmission per 10mm (with Fresnel reflection)

λ [nm]	n_o	n_e	$T(\lambda)$ [%]	
200.0	1.9127	1.9016	75.0	density: 3.98 g/cm ³
250.0	1.8452	1.8315	82.0	CTE@0-200°C: 6.7x10 ⁻⁶ /K parallel to optical axis 5.0x10 ⁻⁶ /K normal to optical axis
300.0	1.8144	1.8053	83.8	orientation z surface to x- and y-axes:
350.0	1.7972	1.7885	84.2	zx +/- 15 arcmin
400.0	1.7865	1.7781	84.6	zy +/- 15 arcmin
450.0	1.7794	1.7710	84.9	dimensions: y up to 350mm
480.0	1.7761	1.7679	85.0	x up to 500mm
486.1	1.7755	1.7673	85.0	z up to 300mm (along optical axis)
546.1	1.7707	1.7626	85.1	recommended polishing slurries
587.6	1.7681	1.7601	85.2	- OXAPAD
643.8	1.7654	1.7574	85.3	- OXAPAAL
656.3	1.7649	1.7569	85.3	- OXAPA SOL <i>for finishing</i>
1000.0	1.7557	1.7678	85.5	recommended polishing pads
3000.0	1.7122	1.7047	86.7	- OXAPA polishing pad hard 03, 1
4000.0	1.6752	1.6682	78.0	- OXAPA polishing pad intermediate 11, 12
5000.0	1.6240	1.6184	40.0	- OXAPA polishing pad soft 4, 19 <i>for finishing</i>
7000.0	1.4663	1.4590	5.0	recommended polishing pitches
				- OXAPA PP 25-45

dispersion

λ [nm]	$v(\lambda)$	$v(\lambda)$
e-line 546.1	72.0	72.6
d-line 587.6	72.5	73.1
4000.0	7.7	7.7