



BK7 Optical Glass

Special Properties

- * High quality optical glass
- * Practically bubble and inclusion free
- * Very clear and colorless appearance
- * Made of purest raw materials

Typical Applications

- * General optical applications
- * Mirror substrates
- * Substrates for mirror coating
- * Substrate for filter coating
- * Measurement and Sensor-Technology

BK7 is a very, if not the most, common technical optical glass for high quality optical components in the visible range. BK7 is a relatively hard bor-crown glass and shows a good scratch resistance. BK7 has a very low amount of inclusions and is almost bubble-free. Another reason for choosing BK7 is the high linear optical transmission in the visible range down to 350nm. Because of stable chemical properties of BK7, no special treatment is required to grind and polish the material. BK7 is produced in strips and blocks up to about 350mm wide and about 70mm thick and can be fabricated to any smaller size. Larger BK7 strips and dimensions are available.

Specifications of BK7 Optical Glass

Optical Properties

- * Optical Transmission spectrum of BK7
- * Refractive Index n_d : 1,51680 (587,6nm)
- * Abbe numbers:
1 $v_e = 63,96$
2 $v_d = 64,17$

Mechanical Properties

- * Density: 2,51 g/cm³
- * Young's modulus E: 82×10^3 N/mm²
- * Poisson's ratio μ : 0,206
- * Knoop hardness $HK_{0,1/20}$: 610

Thermal Properties

- * Coefficient of thermal expansion:
* $7,1 \times 10^{-6}/K$ (-30°C to +70°C)
* $8,3 \times 10^{-6}/K$ (+20 to +300°C)
- * Viscosities:
* Softening Point ($10^{7,6}$ dPa): 719°C
* Annealing Point (10^{13} dPa): 557°C
- * Transformation temperature Tg: 557°C

Chemical Resistances

- * Climate Resistance Class 2 Resistance against humidity is expressed by CR-Classes 1 (high) to 4 (low).
- * Stain Resistance Class 0 Resistance against staining is expressed by FR-Classes 0 (high) to 5 (low).
- * Acid Resistance Class 1 Resistance against acid solutions is expressed by SR-Classes 0 (high) to 4 (low).
- * Alkali Resistance Class 2 Resistance against alkali solutions is expressed by AR-Classes 0 (high) to 4 (low).
- * Phosphate Resistance Class 2,3 Resistance against an alkali phosphate solution is expressed by PR-Classes 1 (high) bis 4 (low).