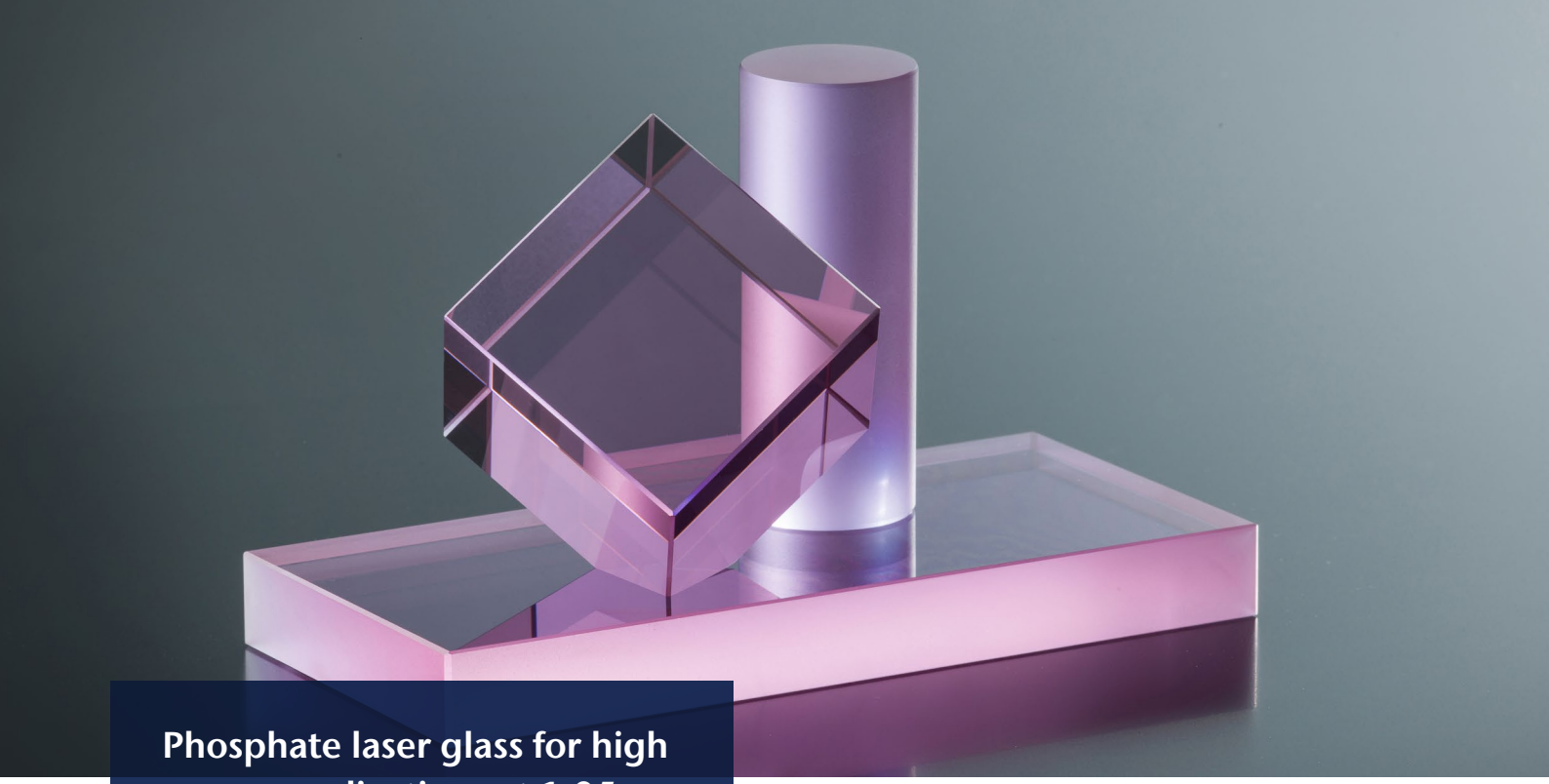

Phosphate laser glass for high power applications at 1.05 µm

BLG-80 Broadband Laser Glass

Product Information
BLG-80 is a Neodymium – Ytterbium doped phosphate laser glass with very broad emission spectrum usable in laser systems with pulse compression. It also offers possibilities for tuning the laser emission wavelength within the broad emission spectrum.

The glass is available at 3 doping levels (all displayed in 10^{20} ions/cm^3):
BLG-80.001: 2.0 Nd^{3+}, 0.2 Yb^{3+}
BLG-80.002: 2.0 Nd^{3+}, 1.8 Yb^{3+}
BLG-80.003: 2.1 Nd^{3+}

All properties displayed are exemplary for all doping levels, if not otherwise indicated.

Applications
- High Power Applications
- Material processing
- Medical/cosmetic applications

Quality assurance
Quality control is carried out under rigorous final inspection of the finished component. Selected glass properties and doping levels are measured for every melt. Measurements include chemical composition control, a range of photometric measurements, physical property test and inspection of inner quality.

Forms of supply
The glass is available as fully finished components, such as rods, slabs and discs, manufactured according to customer specifications including dielectric coatings (AR, HR, etc.) with high laser damage threshold. Please contact us to find out which of the doping levels are available from stock according to your needs.

Application support
Please contact us with your laser components specification. Our experienced expert application team will find the right solution for your application.

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BLG-80 Broadband Laser Glass

Laser Properties (Calculated, Judd-Ofelt)			
	.001	.002	.003
Emission Peak λ [nm]	1055	977	1055
Effective Linewidth [nm]	40.6	77.7	26.5
Linewidth FWHM [nm]	24	94	23
Radiative Lifetime τ_{Rad} [µs]	N/A	N/A	342
Emission Cross Section σ_{em} [10^{-20} cm²]	N/A	N/A	3.8

Optical Properties	
n_d	1.5491
ν_d	61.51
n_2 [10^{-20} m²/W] (calc.)	3.68
$dn/dT_{rel.}$ (1060 nm, 20 °C – 40 °C) [10^{-6}/K]	–3.8
$n_{1054\ nm}$ (calc. from Sellmeier Coefficient)	1.5384
Stress Optical Coefficient K [10^{-6} mm²/N] (1060 nm)	1.98

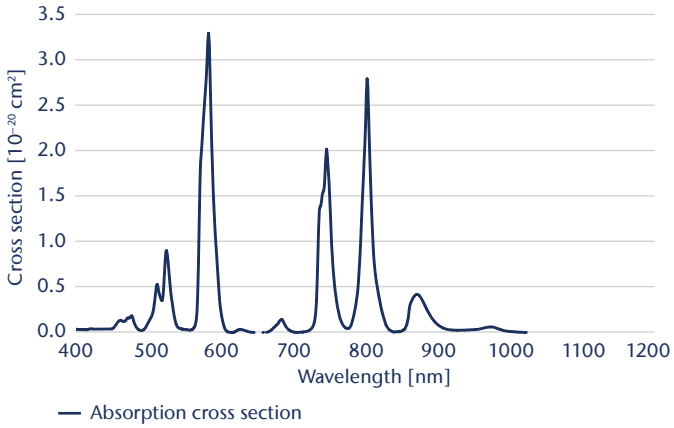
Sellmeier Coefficients			
B1	1.28662878	C1	0.00767755
B2	0.07820471	C2	0.03300105
B3	0.83480949	C3	101.966745

Attenuation Coefficient [cm⁻¹]			
400 nm	≤0.2	3333 nm	≤2.0

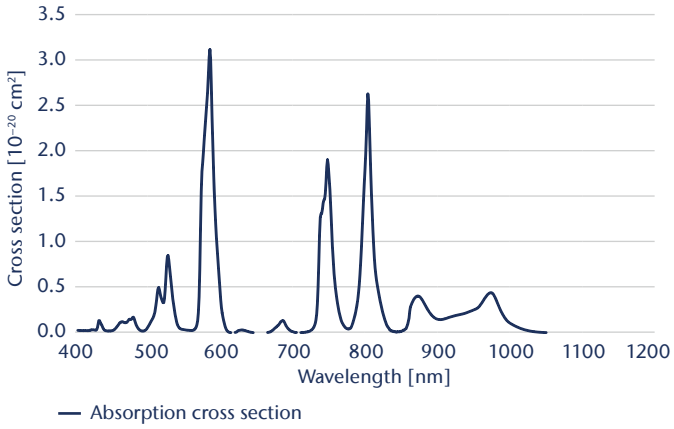
Physical Properties	
Density ρ [g/cm³]	2.93
Thermal Conductivity $\lambda_{25\,°C}$ [W/(m·K)]	0.53
Thermal Conductivity $\lambda_{90\,°C}$ [W/(m·K)]	0.58
Young's Modulus E [10^3 N/mm²]	56
Poisson's Ratio µ	0.27
Fracture Toughness, K_{1C} [MPa·m$^{1/2}$]	0.6
Knoop Hardness $HK_{0.1/20}$	358
Heat Capacity $c_{p,\,20\,°C}$ [J/(g·K)]	0.71
Thermal Expansion $\alpha_{(+20/+300\,°C)}$ [10^{-6}/K]	13.1
Thermal Expansion $\alpha_{(+20/+40\,°C)}$ [10^{-6}/K]	10
Transformation Temperature T_g [°C]	444

Chemical Properties	
Weight Loss in 50 °C Water [mg/cm² d)]	0.022
SR	4.3
AR	3.3
FR	0
CR	4

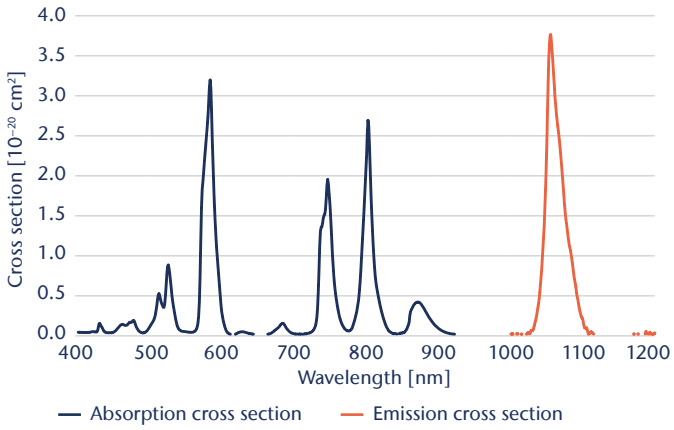
Cross Sections for doping level BLG-80.001



Cross Sections for doping level BLG-80.002



Cross Sections for doping level BLG-80.003



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