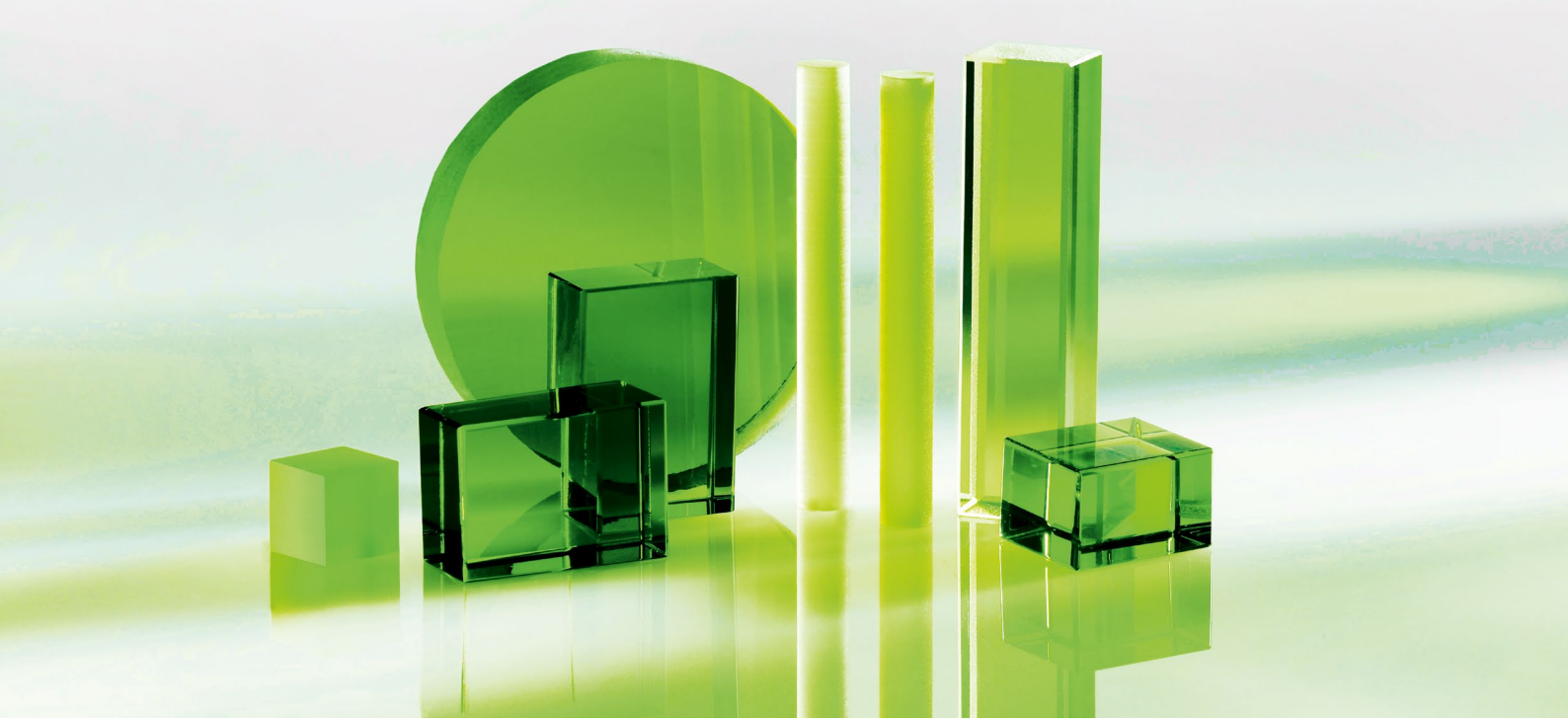


LG-960 ‘Eye-Safe’ Laser Glass

Phosphate laser glass for range finding and medical applications at 1.5 µm

Product information

LG-960 is an erbium – yttrium doped phosphate laser glass with improved thermo-mechanical figure of merit usable in flash lamp and diode pumped solid state laser applications. It offers possibilities for increased load and/or repetition rates.

Applications

- Rangefinders
- LIDAR
- Medical lasers for dermatological use

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.

Application support

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

Erbium has significant absorption at the lasing wavelength.
For further information please contact a sales representative.

SCHOTT

LG-960 ‘Eye-Safe’ Laser Glass

Erbium laser properties (Calculated, McCumber)	
Emission cross section maxima λ [nm]	1534
Effective linewidth [nm]	45.6
Linewidth FWHM [nm]	23.9
Radiative lifetime τ_{Rad} [ms]	10.4
Emission cross section σ_{em} [10^{-20} cm²]	6.8
Fluorescence lifetime [ms] (measured)	10.2

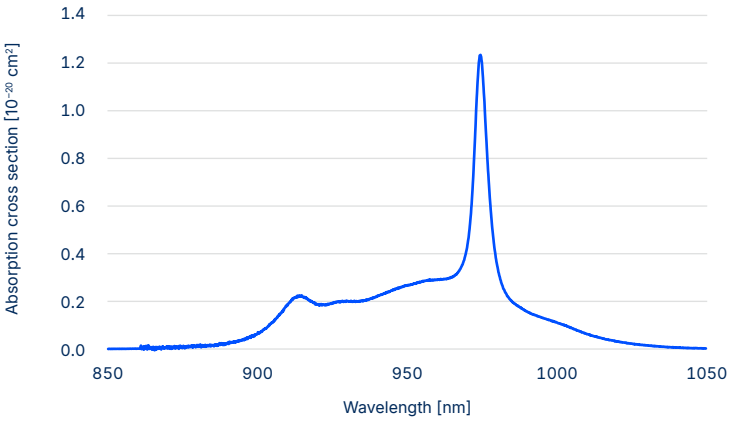
Optical properties	
n_d	1.5443
v_d	62.27
n_2 [10^{-20} m²/W] (calc.)	3.6
$dn/dT_{rel.}$ (1060 nm, 20 °C – 40 °C) [10^{-6}/K]	0.4
$n_{1540\ nm}$ (calc. from Sellmeier coefficient)	1.533
Stress optical coefficient K [10^{-6} mm²/N] (588 nm)	2.60

Sellmeier coefficients			
B1	1.27635140	C1	0.00755618
B2	0.07497787	C2	0.03314959
B3	0.85823953	C3	99.796425

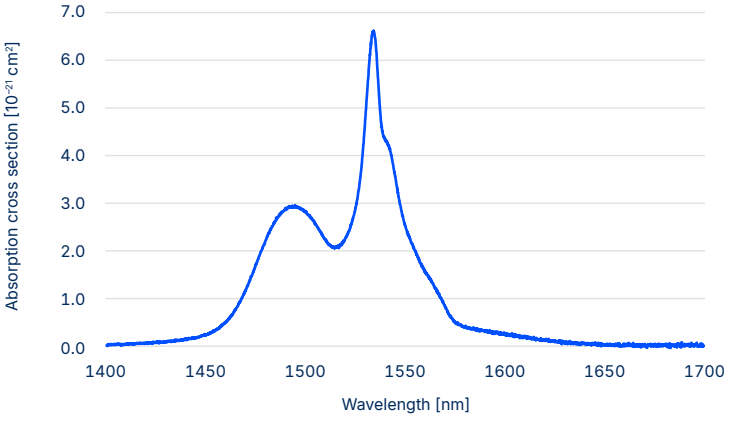
Physical properties	
Density ρ [g/cm³]	3.13
Thermal conductivity $\lambda_{25\,°C}$ [W/(m·K)]	0.59
Thermal conductivity $\lambda_{90\,°C}$ [W/(m·K)]	0.64
Young’s modulus E [10^3 N/mm²]	66.7
Poisson’s ratio μ	0.25
Fracture toughness, K_{1C} [MPa·m$^{1/2}$]	0.7
Knoop hardness $HK_{0.1/20}$	393
Heat capacity $c_{p,\,+25\,°C/+100\,°C}$ [J/(g·K)]	0.67
Thermal expansion $\alpha_{(+20/+300\,°C)}$ [10^{-6}/K]	9.8
Thermal expansion $\alpha_{(+20/+40\,°C)}$ [10^{-6}/K]	7.2
Transformation temperature T_g [°C]	504

Chemical properties	
Water loss in 50 °C water [mg/cm² d)]	0.0001
SR	4.3
AR	2.0
FR	0
CR	1

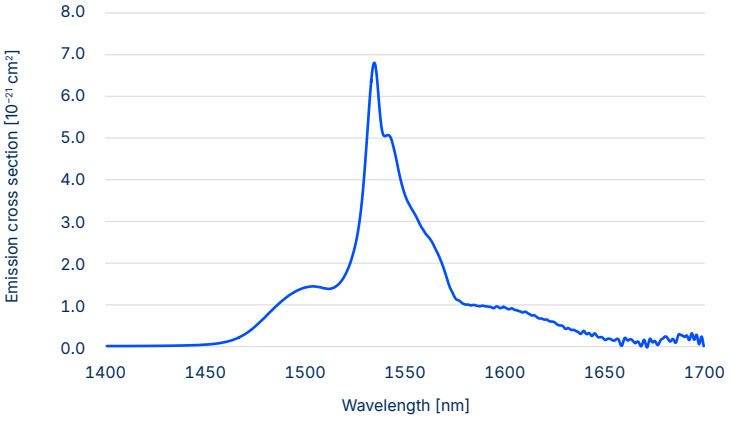
Absorption cross section for Yb^{3+}



Absorption cross section for Er^{3+}



Emission cross section for Er^{3+}



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