LG-950 'Eye-Safe' Laser Glass

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

Product information

LG-950 is an Erbium and Ytterbium doped phosphate laser glass usable in diode pumped solid-state laser applications. Besides a good solubility of rare earth ions the phosphate glass offers also a good laser performance. The glass is produced in Europe and is designed for our European customers.

Applications

- Rangefinders
- Medical lasers for dermatological use
- LIDAR

Quality assurance

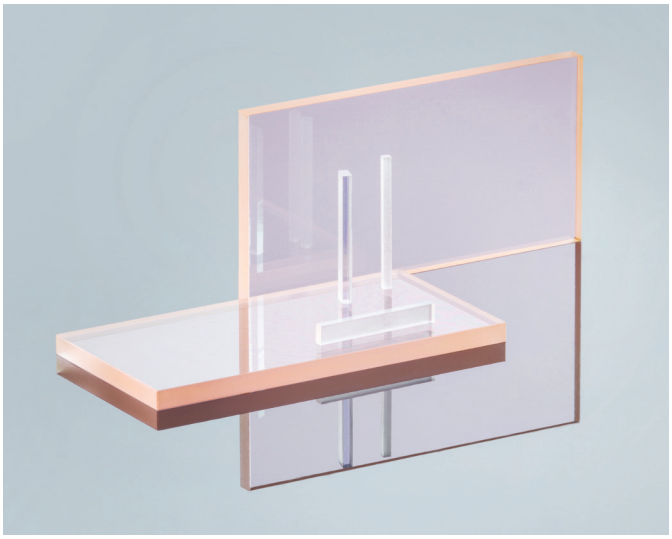
Quality control is carried out under rigorous final inspection of the finished component. Selected glass properties and doping levels are measured for every melt. Measurements include chemical composition control, a range of photometric measurements, physical property test and inspection of inner quality.

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 threshold. Please contact us to find out which of the various doping levels are available from stock according to your needs.

Application support

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



Erbium Laser Properties	
Emission Cross Section Maxima λ [nm]	1534.2
Effective Linewidth [nm]	53.4
Linewidth FWHM [nm]	20.4
Radiative Lifetime τ_{Rad} [ms] (calc.)	8.6
Emission Cross Section σ_{em} [10^{-21} cm^2]	7.0
Fluorescence Lifetime [ms]	6.4

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

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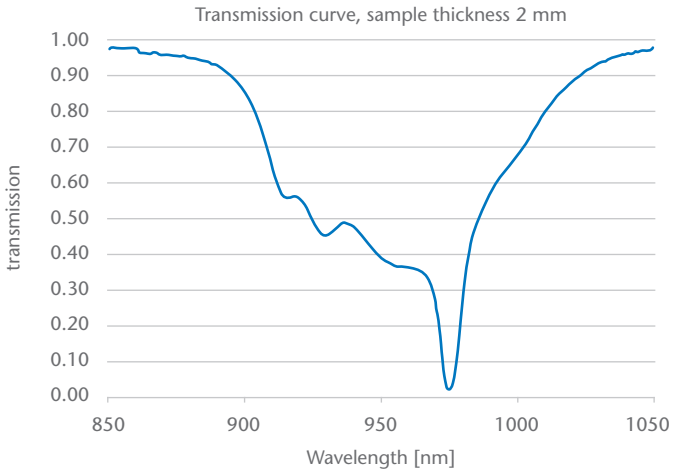
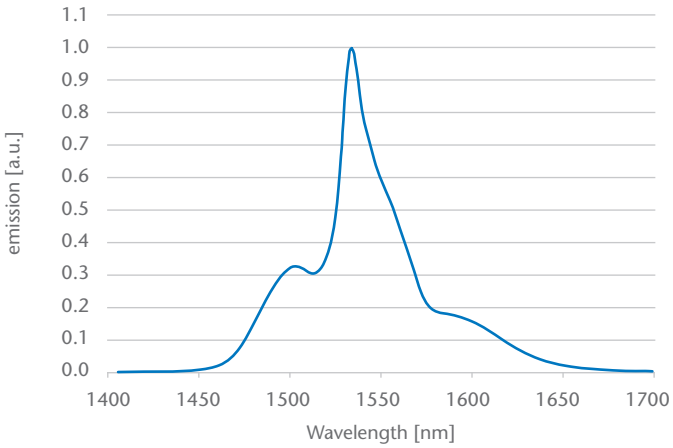
Optical Properties	
n_d	1.5291
ν_d	63.0
n_2 [10^{-20} m^2/W] (calc.)	3.4
dn/dT relative at 1.54 µm [10^{-6}/K]	
$n_{1534\ nm}$ (calc.)	1.5151
Stress Optical Coefficient K [10^{-6} mm^2/N]	2.35

Sellmeier Coefficients			
B1	1.24000	C1	0.00745
B2	0.07010	C2	0.03330
B3	0.81400	C3	100.000

Physical Properties	
Density ρ [g/cm^3]	2.919
Thermal Conductivity $\lambda_{90°C}$ [W/(m·K)]	0.63
Young's Modulus E [10^3 N/mm^2]	56.3
Poisson's Ratio µ	0.249
Knoop Hardness $HK_{0.1/20}$	371
Heat Capacity c_p [J/(g·K)]	0.72
Thermal Expansion $\alpha_{(+20/+300°C)}$ [10^{-6}/K]	12.9
Thermal Expansion $\alpha_{(+20/+40°C)}$ [10^{-6}/K]	10.84
Transformation Temperature T_g [°C]	422

Chemical Properties	
SR	4.0
AR	4.3
FR	0
CR	4





(All properties displayed exemplary for a doping level of $14.7 \cdot 10^{20}$ Yb^{3+} ions/cm^3 and $0.55 \cdot 10^{20}$ Er^{3+} ions/cm^3)

The following doping levels are available:

Yb^{3+} [10^{20} ions/cm^3]	Er^{3+} [10^{20} ions/cm^3]
13.2	0.55
20.0	0.15
all	
±0.3	±0.05

Other doping levels are available for
12 – $20 \cdot 10^{20}$ Yb^{3+} Ions/cm^3 and 0.13 – $0.70 \cdot 10^{20}$ Er^{3+} Ions/cm^3

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