

LG-930 'Eye-Safe' Laser Glass

Phosphate laser glass for medical and bio-photonic applications; operation at 1.5 μm

Product Information

The LG-930 is an Erbium - Ytterbium - Chromium doped phosphate based laser glass used primarily in flashlamp pumped solid-state laser systems. Phosphate glasses generally offer higher solubility of rare earth dopants, thus the amount of active ions can be significantly increased.

Applications

- Medical lasers for dermatological use
- Analytical instrumentation

Advantages

- Good athermal properties
- High transmission at the lasing wavelength
- Consistent quality and high homogeneity

Quality Assurance

Quality control is based on statistical process control, as well as on rigorous final inspection of the finished component. Glass properties are measured for every melt. Measurement instruments include a broad range of interferometers, spectrophotometers, physical property test systems, vision systems, and a laser test bed.

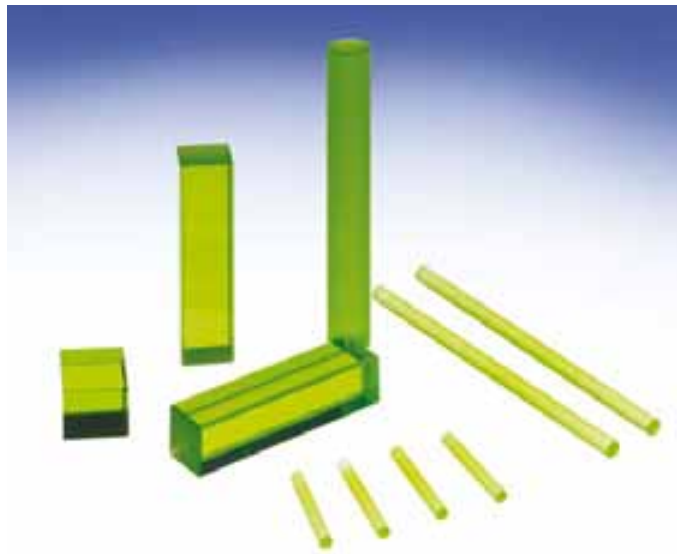
Forms of Supply

We supply fully finished laser components fabricated to custom specifications (e.g. rods, slabs and discs) with high laser damage threshold dielectric coatings.

Application Support

Please contact us with your requested laser glass specifications. Our experienced application team is trained to find the right solution for your application.

*This glass is suitable for "eye-safe" laser devices. Actual safety depends on product configuration.



Erbium Laser Properties

Emission Peak, λ [nm]	1530
Emission Effective Linewidth [nm]	41.5
Emission Linewidth, FWHM [nm]	28.1
Loss at Lasing Wavelength* [cm^{-1}]	0.09
Radiative Lifetime, τ_{Rad} [msec]	13
Emission Cross Section, σ_{em} [10^{-20}cm^2]	0.6
Fluorescence Lifetime [msec]	9.0

* Loss at the lasing wavelength is dominated by ground state absorption of erbium and is thus a function of erbium content in the glass

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Optical Properties

Refractive Index, n_d	1.537
Abbe number, v_d	65.80
$n_{1054 \text{ nm}}$	1.529
$n_{1540 \text{ nm}}$	1.527

Physical Properties

Density, ρ [g/cm ³]	3.04
Thermal Conductivity (25 °C), $\kappa_{25^\circ\text{C}}$ [W/m•K]	0.48
Young's Modulus, E [GPa]	52.9
Poisson's Ratio, ν	0.26
Knoop Hardness, $\text{HK}_{0.1/20}$	340
Thermal Expansion, $\alpha_{20-300^\circ\text{C}}$ [10 ⁻⁷ /°C]	118
Thermal Expansion, $\alpha_{20-40^\circ\text{C}}$ [10 ⁻⁷ /°C]	91
Transformation Temperature, T_g [°C]	493

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