

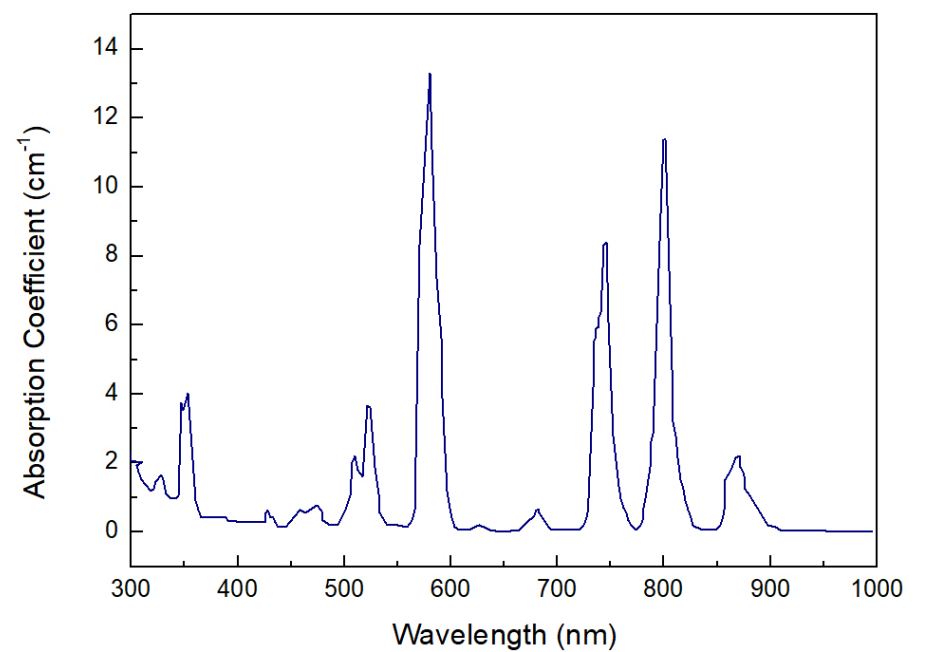
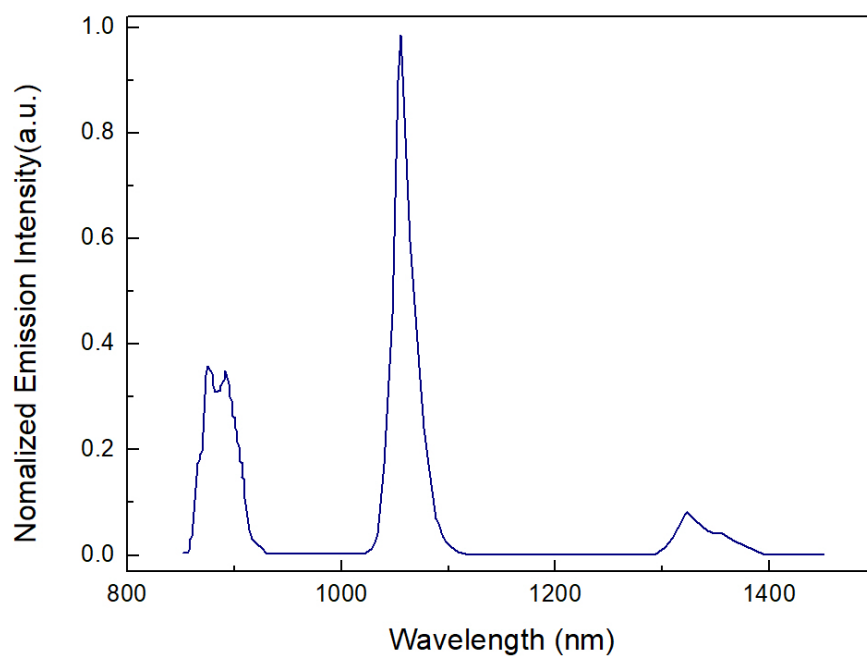
NAP Nd:Glass



DESCRIPTION

NAP Neodymium-doped phosphate glass is created specially for high average power applications. NAP2 and NAP4 are two types of new laser glass with high thermal shock resistance properties, which have higher thermal conductivity, lower coefficient of thermal expansion and modest emission cross section. They are served for laser systems with high repetition rates and high energy rates and high energy, which have broad applications in laser ranger, laser peening and pump laser for OPCPA systems.

SPECTRA



PARAMETER

Laser Specifications

model	NAP2	NAP4
Cross section for stimulated emission(10-20cm ²)	3.6±0.1	3.1±0.1
Lifetime at 1053nm (µsec)*	≥360(Nd2O3: 0.5wt%)	≥370(Nd2O3: 0.5wt%)
	≥350(Nd2O3: 1.0wt%)	≥360(Nd2O3: 1.0wt%)
	≥330(Nd2O3: 2.0wt%)	≥330(Nd2O3: 2.0wt%)
	≥310(Nd2O3: 3.0wt%)	≥310(Nd2O3: 3.0wt%)
Effective bandwidth (nm) 25.4 28.5	25.4	28.5
Fluorescence peak wavelength (nm)	1052	1052
	≤0.0015(1053nm)	≤0.002(1053nm)
	≤0.25(400nm)	≤0.3(400nm)
Absorption coefficient (cm ⁻¹)	≤1.5(3333nm)	≤1.5(3333nm)

Optical Specifications

model	NAP2	NAP4
Non-linear refractive index coeff.n ₂ (×10 ⁻¹³ e.s.u)	≤1.25	≤1.10
Refractive index (1053nm)	1.537±0.003	1.515±0.005
Abbe value	67	67
dn/dT (10 ⁻⁶ /°C) (20~100°C)	-9	1.9

Thermal Specifications

model	NAP2	NAP4
Transformation temp. (°C)	500	545
Softening temp. (°C)	550	600
Coeff.of linear thermal expansion (10 ⁻⁷ /K) (30~100°C)	87	63
Thermal coeff.of optical path length(10 ⁻⁶ /K) (50~100°C)	3.8	5
Thermal conductivity (25°C) (W/mK)	0.76	0.88
Specific heat (25°C) (J/gK)	0.757	0.775

Other Specifications

model	NAP2	NAP4
Density (g/cm ³)	2.84	2.58
Young's modulus (G Pa)	58	67
Poisson's ratio	0.25	0.25
Knoop hardness (kg/cm ²)	382	549
Fracture toughness (MPa·m ^{1/2})	0.68	0.74
Dw (H ₂ O 98°C) (mg/(cm ² /day))	0.003	0.002

FEATURES

- High thermal shock resistance properties
- Higher thermal conductivity
- Lower coefficient of thermal expansion
- Modest emission cross section

APPLICATIONS

- Optical wave guides
- Optical Second Harmonic Generation(SHG)
- Frequency doubler
- Dynamic holography and optical phase conjugation in the near infrared

