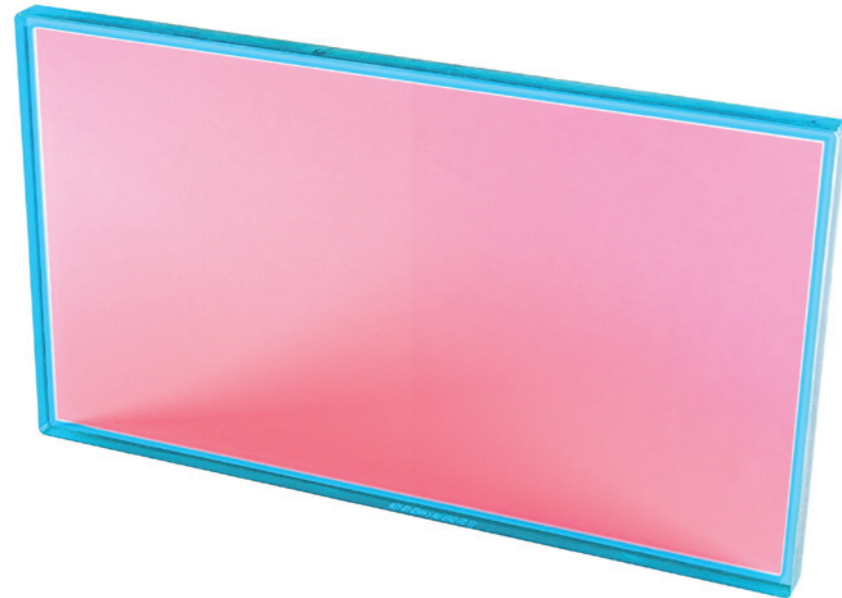
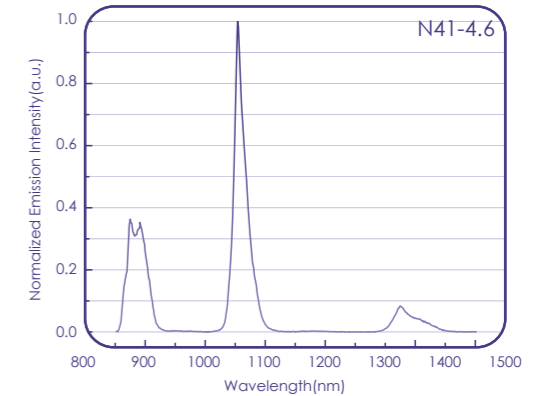
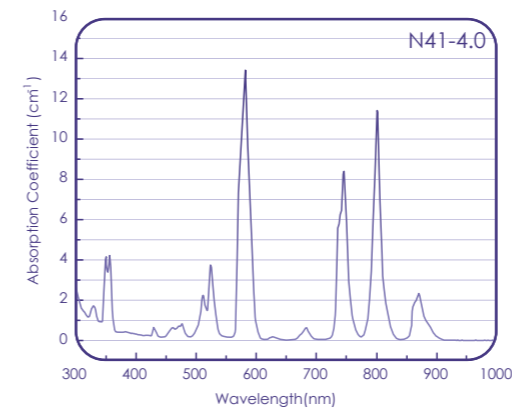


N41 Nd³⁺-doped phosphate glass for high energy applications



N41 phosphate glass with high stimulated emission cross section, lower nonlinear refractive index and good thermal characteristics is specially developed for high power laser facilities. Glass slab up to 900mm×500mm×70mm is available at SIOM.



Laser Specifications

Nd₂O₃ (wt%) 4.6
Nd³⁺ conc. (10²⁰ions/cm³) 4.3±0.1
Cross section for stimulated emission (10⁻²⁰cm²) 3.9±0.1

Lifetime at 1053nm (μsec)

≥370 (Nd₂O₃ : 0.5wt%)
≥360 (Nd₂O₃ : 1.2wt%)
≥315 (Nd₂O₃ : 3.5wt%)
≥310 (Nd₂O₃ : 4.6wt%)

Effective bandwidth(nm)
Fluorescence peak wavelength(nm)

25.5
1053

Absorption coefficient (cm⁻¹)

≤0.0015 (1053nm)
≤0.25 (400nm)
≤1.5 (3333nm)

Optical Specifications

Non-linear refractive index coeff.n₂(×10⁻¹³e.s.u)
Refractive index (1053nm)
Abbe value

≤1.04
1.504±0.003
68.2

Thermal Specifications

Transformation temp.(°C)
Softening temp.(°C)
Coeff.of linear thermal expansion (10⁻⁷/K) (30~100°C)
Coeff.of linear thermal expansion (10⁻⁷/K) (30~300°C)

467
503
129
141

Chemical Specifications

D_w (H₂O 98°C)(mg/(cm²/day))

0.41

Other Specifications

Density(g/cm³)
Young's modulus (G Pa)
Poisson's ratio
Knoop hardness (kg/cm²)
Fracture toughness (MPa·m^{1/2})

2.62
52.4
0.25
347
0.62

*The homogeneity is about 2×10⁻⁶