

lasers



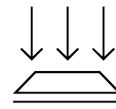
ionizing radiation detection



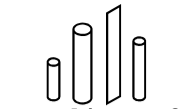
phosphors for light conversion



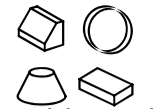
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Laser rods - Neodymium doped

☑ ND:YAG RODS

☑ ND:YAP RODS

CRYTUR grows neodymium doped yttrium aluminium garnet (Nd:YAG) crystals using the Czochralski growth method. A special protective atmosphere applied during crystal growth and post growth annealing result in a very good lasing efficiency of our crystals. Our production line covers crystal growth, machining and coating technologies.

Standard production of Nd:YAG laser rods includes:

Nd dopant concentrations from 0.05 % up to 1.3 at. % of Nd/Y

Rod diameters from 2 mm up to 12 mm

Rod lengths of up to 160 mm

Barrel surface fine ground, polished or grooved

Perpendicular or wedged ends

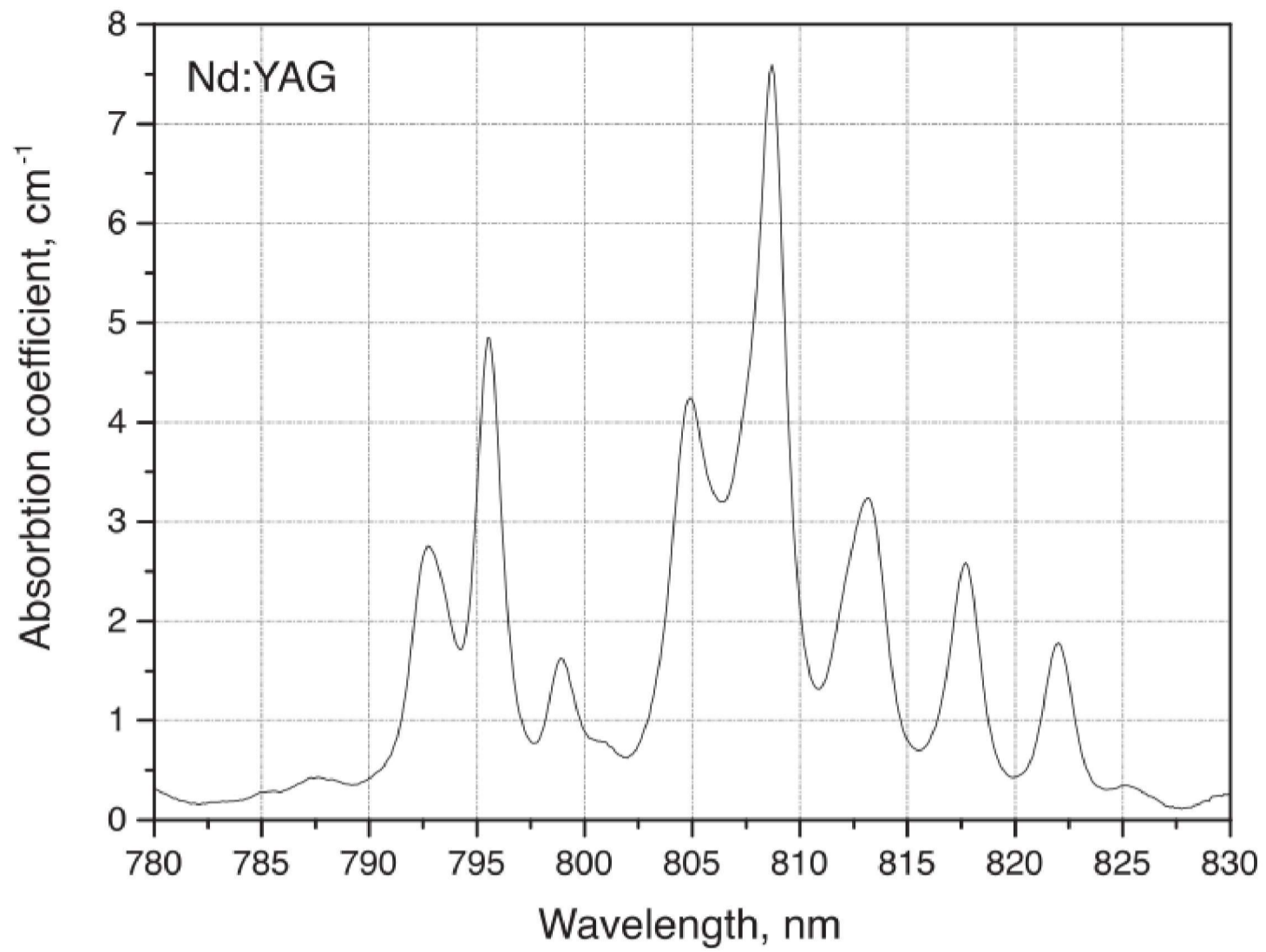
Polishing according to DIN and MIL standards

A wide variety of anti-reflection, partial or high reflection coatings

AR coatings with $R < 0.2\%$ and damage threshold higher than 15 J/cm^2 for 10 ns pulses

We also offer composite laser rods consisting of doped and undoped segments. These composite rods help to decrease thermal lensing and other thermal stress induced effects, particularly when used in axially diode pumped resonators.

Absorbion spectrum of Nd:YAG



MATERIAL PROPERTIES			
Host	Yttrium aluminium garnet (Y ₃ Al ₅ O ₁₂)		
Dopant	Nd ³⁺		
Crystal structure	cubic		
Unit cell dimensions	a _c =1.201 nm		
Refractive index at 1064 nm	1.816		
Thermal expansion coefficient	7.8 x 10 ⁻⁶ /K		
Thermal conductivity	11 W/m K		
Density	4.56 g/cm ³		
Hardness by Mohs	8.25		
Fluorescent lifetime (1% Nd)	235 μs		
Linear dispersion δn/δT [10 ⁻⁶ K ⁻¹]	9.86		
Pump wavelength	808 nm		
Laser wavelengths	⁴ F _{3/2} → ⁴ I _{9/2}	946 nm	
	⁴ F _{3/2} → ⁴ I _{11/2}	1064 nm	
	⁴ F _{3/2} → ⁴ I _{13/2}	1319 nm	
	⁴ F _{3/2} → ⁴ I _{13/2}	1444 nm	
Emission cross section [10 ⁻¹⁹ cm ²]	1064 nm	1319 nm	1444 nm

	3.8	0.95	0.45
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