Nd: GdVO4 Crystal Basic Properties:

Crystal structure	Tetragona
Space Group	$I4_1/amd$
Lattice paramete	a=0.721nm, b=0.635nm
Lasing Transition	4F3/2 → 4I11/2
Lasing wavelength	1062.9nm
Emission Cross Section (at 1064nm)	$7.6x10^{-19}$ cm^2
Absorption Cross Section (at 808nm)	$4.9x10^{-19}$ cm^2
Absorption Coefficient (at 808nm)	$74cm^{-1}$
Index of Refractivity (at 1064nm)	n_0=1.972, n_e=2.192
Thermal Conductivity (<110>)	11.7W/(mxK)
Density	$5.47g/cm^3$
Nd Dopent level (atomic)	0.1%, 0.2%, 0.3%, 0.5%, 0.7%, 1.0%...

Information Regarding Neodymium Laser Host Crystals:

Crystal	**$Nd:YVO_4$**	**$Nd:GdVO_4$**	**Nd:YAG**
Laser wavelengths	1064.3nm, 1342.0nm	1062.9nm, 1340nm	1064.2nm, 1338.2nm
Emission bandwidth(linewidth at 1064nm)	0.8nm		0.45nm
Effective laser cross section (emission cross section@1064nm)	$15.6x10^{-19}cm^2$	$7.6x10^{-19}cm^{-2}$	$6.5x10^{-10}cm^{-2}$
Polarization	Parallel to c-axis	Parallel to c-axis	unpolarized
Radioactive lifetime at 1% Nd doping	~ 100μs	~ 95μs	230μs
Pump wavelength	808.5nm	808.4nm	807.5nm
Peak pump absorption at 1% doping	~ 41 cm^{-1}	~ 57 cm^{-1}	
Thermal conductivity	5.1 W/nK	11.7(Ref.7) W/nK	14 W/nK
Doping concentration range	0.1-3.0%	0.1-3.0%	0.1-2.0%

Nd:GdVO4 Index of Refraction:

Wavelength	500nm	630nm	850nm	1064nm	1300nm	1400nm	1550nm
n_o	2.04880	2.01685	1.99490	1.98535	1.97889	1.97683	1.97410
n_e	2.31219	2.25431	2.21482	2.19813	2.18742	2.18419	2.18009

Nd:GdVO4 Demonstrated Performance in Diode Pumped Laser Systems:

Laser Operation	Output Wavelength	Frequency Doubler	Slope Efficiency	Max.Optical Conversion Efficiency
cw	1.06μm	none	42.9%	38.1%
cw	1.34μm	none	40.2%	n/a
cw	0.53μm	KTP	n/a	21%
cw	0.67μm	LBO	n/a	2.8%
Q-switched	1.06μm	none	31.6%	n/a
Q-switched	0.53μm	KTP	n/a	25%