



Yttrium Vanadate

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Yttrium Orthovanadate Crystals - YVO₄

Yttrium Orthovanadate is suited for optical polarising components because of its wide transparency range and large birefringence. It is a substitute for Calcite (CaCO₃) and Rutile (TiO₂) crystals.

Applications

- Fiber - Optic Isolators.
- YVO₄ Beam Displacer.
- Circulators and Glan Polarisers.



Main Properties

Transparency Range	High transmittance from 0.4 to 5 μm
Symmetry	D _{4h}
Lattice Parameters	a = b = 7.12 Å; c = 6.29 Å
Density	4.22 g / cm ³
Hygroscopic Susceptibility	Non - hygroscopic
Thermal Expansion Coefficient	\dot{A}_a = 4.43 x 10 ⁻⁶ / K; \dot{A}_c = 11.37 x 10 ⁻⁶ / K
Thermal Expansion Coefficient	//C : 5.23 W / m / K; $\dot{I}C$: 5.1 W / m / K
Crystal Class	Positive uniaxial with n _o = n _a = n _b , n _e = n _c
Refractive Indices, Birefringence	n _o = 1.9929, n _e = 2.2154, j+n = 0.2225, at 0.63 μm
(j+n = n _e - n _o)	n _o = 1.9500, n _e = 2.1554, j+n = 0.2054, at 1.30 μm
	n _o = 1.9447, n _e = 2.1486, j+n = 0.2039, at 1.55 μm
Sellmeier Equation (\dot{E} in μm)	n _o ² = 3.7783 + 0.0697 / (\dot{E} ² - 0.0472) - 0.0108 \dot{E} ²
	n _c ² = 4.5991 + 0.1105 / (\dot{E} ² - 0.0481) - 0.0123 \dot{E} ²
Thermal Optical Coefficient	dn _a / dT = 8.5 x 10 ⁻⁶ / K
	dn _c / dT = 3.0 x 10 ⁻⁶ / K

Availability

- Sizes of boule crystal: |μ20_j x 25 mm X 20_j x 30mm
- Sizes of crystal devices: available according to the requirement of the user

Specification

PRODUCT	SPECIFICATION
1% Niobate : Yttrium Vanadate; a - cut; 3.0 x 3.0 x 1.0 mm	S1 : AR 1064 nm (R < 0.1% HT 808nm (R < 5%) S2 : AR 1064 nm (R < 0.1%)
KTP cut for type II; θ = 90°, φ = 23.5°; 3.0 x 3.0 x 4.5 mm	S1 : HR 1064 nm (R > 99.8%) HT 532 nm (R < 5%) S2 : AR 1064 nm (R < 0.1%) HT 532 nm (R <

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	0.5%)
Yttrium Vanadate Boule : c - axis;	140 g
Yttrium Vanadate Wafers	50 x 1.5 mm

