



KNIGHT OPTICAL

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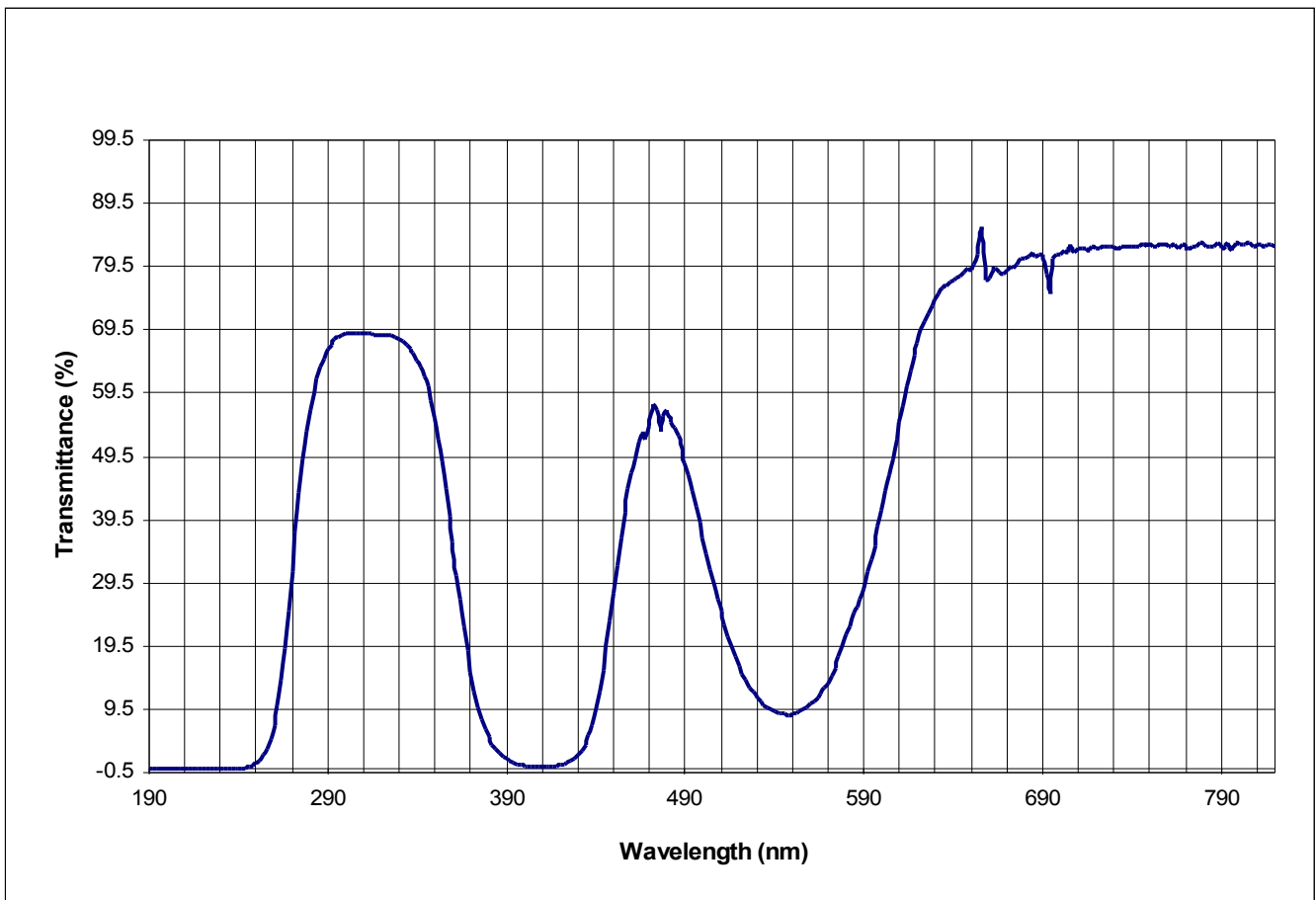
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Title: Optical Material / Crystals (Ultraviolet)

Material / Specification: Ruby 250-Infra-red transmission

Range Description: OPM-RUBY



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Technical Details of Synthetic Ruby Verneuil Crystals

Physical properties	crystalline structure	rhomboedral hexagonal single
	composition	Al ₂ O ₃
	purity	99,99 %
	main impurities	Na ₂ O, Si, Ca, Fe, Ga, Mg, Ti, Mn, Pb, Cu, Zn, Ni
	cleavage	Conchoidal
	density	3.99 – 9.98
	dislocation density	10 ⁹ . 10 ⁸ /m ²
Thermal Properties	melting point	2320 K
	softening point	2070 K
	specific heat	7.5 · 10 ² j/kg · K at 300 K
	thermal conductivity	40 W / m · K ⊥ C-axis at 300 K
	Thermal expansion	6.2 · 10 ⁻⁶ /K // C-axis
Mechanical properties	hardness	Mohs 9 Knoop 2200 face // C-axis Knoop 1800 face ⊥ C-axis
	young's modulus	4.4 · 10 ¹¹ Pa at 300 K
	modulus of rupture	4.0 · 10 ⁸ Pa at 300 K
	compressive strength	2.1 · 10 ⁹ Pa at 300 K
	tensile strength	1.9 · 10 ⁸ Pa at 300 K
	Poisson's constant	0.3
Chemical properties	acids and alkalis attack	at 570 K
	porosity	0
Electrical properties	dielectric constant	10.6 electric field // C-axis at 300 K 8.6 electric field ⊥ C-axis at 300
	electrical resistivity	10 ⁹ Ω·m at 770 K 10 ⁴ Ω·m at 1270 K 10 Ω·m at 2270 K