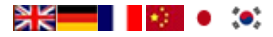


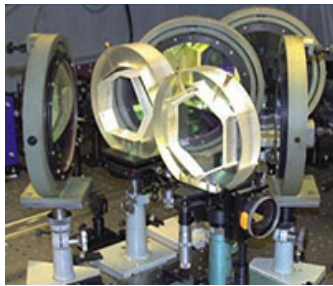
◇ Sapphire ◇ ZnSe ◇ ZnS ◇ CdSe ◇ CdS ◇ ZnTe ◇ CVD ZnSe ◇ CaF₂ ◇ Bi₂Te₃ ◇ Bi₂Se₃ ◇ CdWO₄ ◇ NaBi(WO₄)₂
 ◇ Langasite & Langatate ◇ LiNbO₃ ◇ Fused silica ◇ Silicon ◇ GaSe ◇ PbS, PbSe, PbTe ◇ KDP



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KDP



KDP (KH₂PO₄, or monopotassium phosphate, or potassium dihydrogen phosphate) is a water soluble crystal known for its non-linear optical properties.

KDP crystals are used for producing electro-optical elements (Pockels cells), waveplates, frequency converters (second, third and fourth harmonic generators for autocorrelators and cross-correlators, parametric generators and amplifiers) in various pulse lasers

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ENQUIRY FORM

Basic properties

Refractive index (22°C)	
dn/dT, 10 ⁻⁶ /°C (от 20 до 40°C)	
Reflection loss	
Linear absorption, cm ⁻¹	
Electro-optical indices @ λ=0.546μm, ×10 ⁻¹² m/V	
Structure	Tetragonal, 42m
Lattice constant ()	a=7.4529 c=6.9751
Density, g/ cm ³	2.3325
Mohs' hardness	2±0.5
Vickers' hardness	122±17 c 183±12 ⊥ c
Maximal operating temperature, (°C)	125
Index of linear expansion (270K),×10 ⁻⁶ , K ⁻¹	42 c 26 ⊥c
Specific heat, J/kg*K	857
Thermal conductivity, W/mK	1.21 c 1.3 ⊥c
Transmission range (transmission over >50% of a sample 2 mm thick), μm	0.176 1.55
0.266μm	no=1.5599 ne=1.5105
0.532μm	no=1.5129 ne=1.4709
1.064μm	no=1.4944 ne=1.46035
0.266μm	dno/dT= -38 dne/dT= -29
0.532μm	dno/dT= -40 dne/dT= -29
1.064μm	dno/dT= -48 dne/dT= -31
0.266μm	e-beam: 4.8% o-beam: 4.1%
0.532μm	e-beam: 4.2% o-beam: 3.6%
1.06μm	e-beam: 3.9% o-beam: 3.5%
0.263μm	≈0.03
0.527μm	≤0.001
1.054μm	≈0.06
Non-linear index d ₃₆ , 10 ⁻¹² m/V @ λ=1.064μm	0.43

Angle of synchronism (°) for 2nd harmonic generation @ $\lambda=1.064\mu\text{m}$	-
Type I (oo-e)	41
Type II(eo-e)	59
90°-synchronism @ $\lambda(\mu\text{m})$ and T(°C)	0.518, 25° 0.527, 120°
Specific resistance (106 Ohm*cm)	10-20
r41	8.6
r63T	-10.5
r63S	-8.15
Half-wave voltage @ $\lambda=0.546\mu\text{m}$, kV	7.65
Laser damage threshold, GW/cm ² ($\lambda=1.06\mu\text{m}$, $\tau=10\text{ns}$)	8 *

* Can be improved by annealing

Products

KDP crystals / wafers for electro-optical elements

Diameter/Width	1-100 mm
Thickness/length	1-40 mm
Surface quality	Up to 30-50 , coated with water-repellent film

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