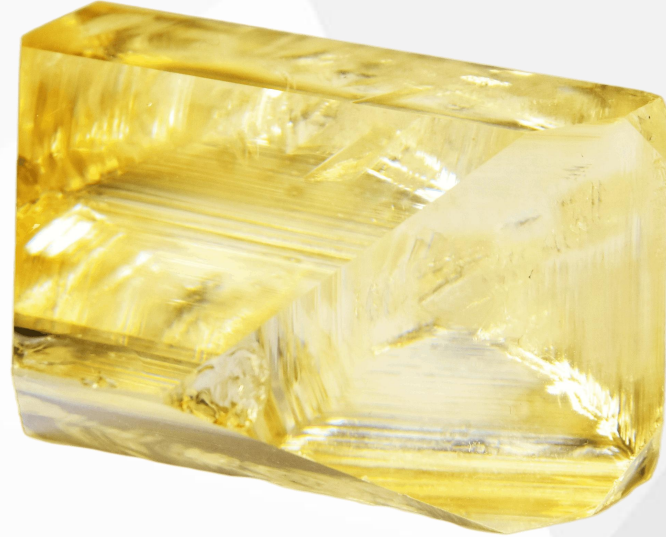


KTA crystals

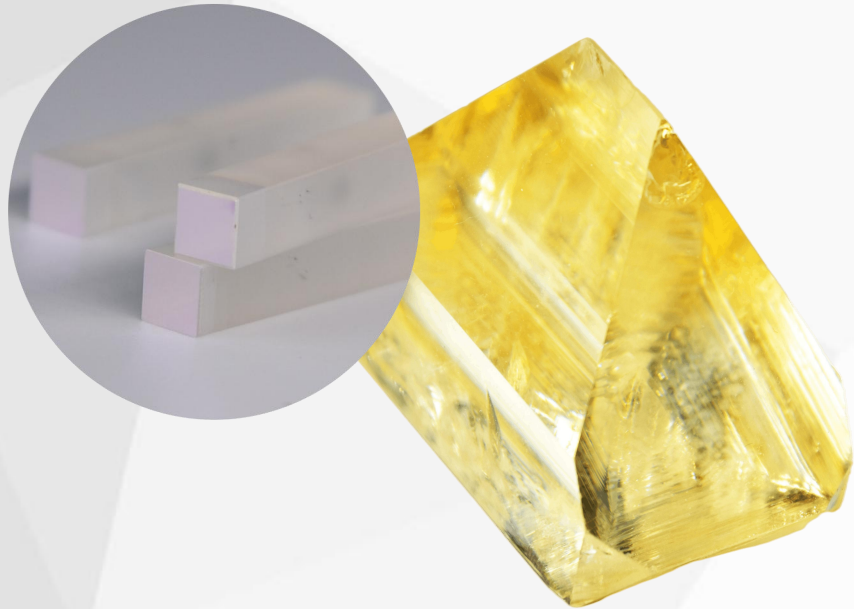
Potassium Titanyle Arsenate (KTiOAsO_4), or KTA crystal, is an excellent nonlinear optical crystal for Optical Parametric Oscillation (OPO) application. It has better non-linear optical and electro-optical coefficients, significantly reduced absorption in the $2.0\text{-}5.0\ \mu\text{m}$ region, broad angular and temperature bandwidth, low dielectric constants. And its low ionic conductivities result in higher damage threshold compared with KTP.

KTA is often used as an OPO / OPA gain medium for emission in the $3\ \mu\text{m}$ range as well as an OPO crystal for eye-safe emission at high average power.



KTA is often used as an OPO / OPA gain medium for emission in the $3\ \mu\text{m}$ range as well as an OPO crystal for eye-safe emission at high average power.

K T A c r y s t a l s



- Transparent between 0.5 μ m and 3.5 μ m
- High non-linear optical efficiency
- Large temperature acceptance
- Lower birefringence than KTP resulting in a smaller walk-off
- Excellent optical and non-linear optical homogeneity
- High damage threshold of AR-coatings: >10J/cm² at 1064nm for 10ns pulses
- AR-Coatings with low absorption at 3 μ m available
- Qualified for space projects

Basic Properties

Crystal Structure	Orthorhombic, Point Group mm2
Lattice Parameter	a=13.125Å, b=6.5716Å, c=10.786Å
Melting Point	1130 °C
Mohs Hardness	near 5
Density	3.454g/cm ³
Thermal Conductivity	K1:1.8W/m/K; K2: 1.9W/m/K; K3: 2.1W/m/K

Optical and Nonlinear Optical Properties

Transparency Range	350-5300nm
Absorption Coefficients	@ 1064 nm<0.05%/cm @ 1533 nm<0.05%/cm @ 3475 nm<5%/cm
NLO Susceptibilities (pm/V)	d31 = 2.76, d32 = 4.74, d33 = 18.5 , d15 = 2.3, d24 = 3.2
Electro-optical constants (pm/V) (low frequency)	r 33=37.5; r 23=15.4; r 13=11.5
SHG Phase Matchable Range	1083-3789nm