

# Potassium Titanyl Arsenate(KTiOAsO<sub>4</sub>, KTA)

## Introduction

Potassium Titanyl Arsenate (KTiOAsO<sub>4</sub>), 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 2.0-5.0 μm region, broad angular and temperature bandwidth, low dielectric constants. And its low ionic conductivities result in higher damage threshold compared with KTP.

## CASTECH offers KTA

- Crystal length from 0.1mm to 30mm and size up to 10x10x30mm
- AR-coating from visible to 3300nm
- Re-polishing, re-coating service
- Fast delivery(10 working days for polished only, 15 working days for AR-coated)

**Table 1. 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 <sup>3</sup>
Thermal Conductivity	K1:1.8W/m/K; K2: 1.9W/m/K; K3: 2.1W/m/K

**Table 2. 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)	d <sub>31</sub> = 2.76, d <sub>32</sub> = 4.74, d <sub>33</sub> = 18.5, d <sub>15</sub> = 2.3, d <sub>24</sub> = 3.2				
Sellmeier Equation $n_i^2 = A_i + B_i \lambda^2 / (\lambda^2 - C_i^2) - D_i \lambda^2$ (λ in μm)	index	A	B	C	D
	n <sub>x</sub>	1.90713	1.23522	0.19692	0.01025
	n <sub>y</sub>	2.15912	1.00099	0.21844	0.01096
	n <sub>z</sub>	2.14768	1.29559	0.22719	0.01436
Electro-optical Constants (pm/V) (low frequency)	r <sub>33</sub> =37.5; r <sub>23</sub> =15.4; r <sub>13</sub> =11.5				
SHG Phase Matchable Range	1083-3789nm				

# 公司简介 INTRODUCTION



## CASTECH INC.

(CASTECH) was founded by Fujian Institute of Research on the Structure of Matter, Chinese Academy of Science in 1988. Thanks to long term interactive partnership with the leaders in laser system manufacturing industry and ongoing efforts of our employees, we have established the largest mass production lines in the world for LBO, BBO, Nd:YVO<sub>4</sub> and TGG crystals, and implemented a complete quality control system for our products.

CASTECH is now a worldwide leading supplier of nonlinear optical crystals, laser crystals, precision optics, and a variety of laser components. In CASTECH, there are Flux/Czochralski/Water Solution/Bridgman Crystal Growth production lines, Crystal Orientation and Dicing workshop, Optical Polishing workshop and Optical Coating workshop with IBS, IAD, MS and EB coating technique. Our commitments are backed by our huge manufacturing capacity.

CASTECH's quality system is IATF 16949:2016 and ISO 9001:2015 certified. We have established a complete system for outgoing parts inspection. Our optical testing equipments include Zygo Interferometers, Agilent Cary 7000, Perkin-Elmer Lambda 950, Nikon Microscope, Photo-Thermal Common-Path Interferometers, Zygo Newview 8300, Taylor Hobson LupoSan 260, Extinction Ratio Measurement and Ellipsometers. These equipments along with many others, ensure that we comply with all specifications for our products.

Today, over 60% of CASTECH's products are exported to USA, Japan, Europe and other Asia Market. We have established a global sales network. We have set up our agencies and distributors in the main industrial countries and districts.

Our mission is to deliver the best products and solutions to our customers in photonics industry, and help them to realize their full potential in business. Here at CASTECH, we value comity, integrity, honesty, and innovation.