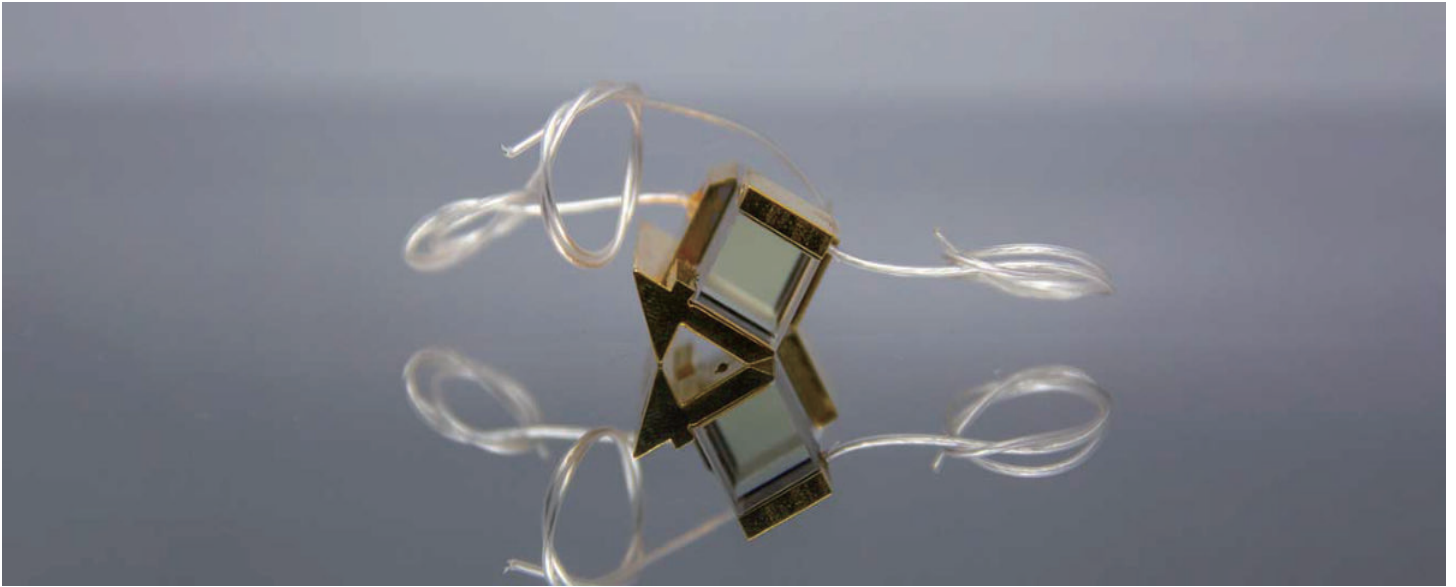


# RTP



## DESCRIPTION

RTP (Titanoxyl Phosphate) crystal is an excellent nonlinear optical crystal, an isomer of Potassium Titanoxyl Phosphate (KTP), with large nonlinear optical coefficients and a wide transmission range in the near and mid-infrared. It is widely used in electro-optical technology such as electro-optical modulation and laser Q-switching because of its excellent properties such as high resistivity, low piezoelectric effect, high threshold of laser damage resistance and non-dampness. Laser pumping of non-critical phase matched cut RTP crystals and their isomers with 1.0  $\mu\text{m}$  band laser can obtain highly efficient 1.5~1.6  $\mu\text{m}$  band human eye safe laser, which has important applications in the field of nonlinear optical frequency conversion.

## FEATURES

- Not deliquescence
- Small volume
- High resistivity
- High extinction ratio
- No piezoelectric effect
- Wide transparency range
- High damage threshold
- Stability at high temperature
- Low half-wave voltage
- Suitable for high frequency operation
- Stable mechanical and chemical properties
- Large nonlinear optical and electro-optical coefficients

## APPLICATIONS

- Pulse selector
- Optical parametric oscillation
- Electro-optic Q switch
- Laser power/phase modulation



# RTP

## PHYSICOCHEMICAL PROPERTIES

Resistivity (20°C, 20%Humidity) , $\Omega \cdot \text{cm}$	$10^{12}$
Aperture, $\text{mm}^2$	From the 2 x 2 to 9 x 9
Length, mm	up to 10
Size Tolerance	$\pm 0.1$ mm
Flatness	$< \lambda/8$ @633nm
Surface Finish	Scratch/Dig 10/5
Parallelism	$\leq 30$ arc sec
Verticality	$\leq 30$ arc min
Angle Tolerance	$q < 0.5^\circ$ , $f < 0.5^\circ$
Coating	AR coatings
Clear Aperture	$>90\%$ central area
Transmission Wavefront Distortion	less than $\lambda/8$ @ 633 nm Dimension
Melting Point	$\sim 1000$ °C
Ferroelectric Transition Temperature	$\sim 810$ °C
Mohs Hardness	$\sim 5$
Coefficient of Thermal Expansion, /°C	$a_1 = 1.01 \times 10^{-5}$ ,
	$a_2 = 1.37 \times 10^{-5}$ ,
	$a_3 = -4.17 \times 10^{-6}$
Hygroscopic	No
Ionic Conductivity (Room Temperature, 10 kHz)	$10^{-8}$ S/cm

## ELECTRO-OPTICAL PROPERTIES

Resistivity	About $10^{11} - 10^{12}$ ohm·cm	
Electro-optic Constant	$r_{33} = 38.5 \text{ pm/V}$	Y cutting
	$r_{33} = 35 \text{ pm/V}$	X cutting
	$r_{23} = 12.5 \text{ pm/V}$	
	$r_{13} = 10.6 \text{ pm/V}$	
Half Wave Working Voltage @1064nm Static	4x4x20mm: 1600V	
	6x6x20mm: 2400V	
	9x9x20mm: 3600V	



# RTP

## LINEAR OPTICAL PROPERTIES

Transparent Range	350nm—4500nm
Thermal Coefficient of Light (dλ/dT)	-0.029 nm /°C
Extinction Ratio	>20dB@633nm
Sellmeier Equation	$n_x^2 = 2.15559 + 0.93307[1 - (0.20994/\lambda)^2] - 0.01452\lambda^2$
	$n_y^2 = 2.38494 + 0.73603[1 - (0.23891/\lambda)^2] - 0.01583\lambda^2$
	$n_z^2 = 2.27723 + 1.11030[1 - (0.23454/\lambda)^2] - 0.01995\lambda^2$

## SPECTRA

