



# SKTP

## Efficient Gray Track Resistance Crystals

Raicol is the first to develop High Gray Track Resistance flux grown KTP crystals, enabling a higher average power density for the second-harmonic generation (SHG) of 1000-1400 nm laser sources. When a crystal is subjected to high power, high repetition rate laser pulses, or CW laser irradiation, gray tracks are often produced. These gray tracks occur due to induced color centers in the KTP crystal that have broad optical absorption in the visible and near infrared wavelengths, especially at 532 nm. The process of the gray track formation is cumulative, and leads to deterioration of harmonic conversion. Raicol's new SKTP crystal allows for use at a high power density, while also providing effective gray track resistance to eliminate the gray track effect.

### Advantages

- Available for a wide range of apertures up to 25x25 mm<sup>2</sup>
- Average output power density of up to 3 kW/cm<sup>2</sup>, at 532 nm, according to the laser regime
- Increased nonlinear coefficient - 4 times higher efficiency than LBO crystals
- Low absorption at visible and near infrared wavelengths
- Broad temperature capability
- Non-hygroscopic material
- Minimized walk-off and wide angular bandwidth

### Common Applications

Medium power green lasers for medical, industrial, scientific and other applications

## KTP Types - Comparison

	<b>KTP</b>	<b>SKTP New</b>	<b>HGTR</b>
Bulk Absorption 1064 (ppm/cm)	300	75	50
Bulk Absorption 532 (ppm/cm)	3000	250	150
Gray Tracking (change of SHG absorption in 532 GRIIRA 600 Sec) ppm/cm*	2000	200	150
Max Aperture (mm <sup>2</sup> )	50X50	25X25	6X6
Peak LIDT 1064 (MW/cm <sup>2</sup> ) (10ns, 10Hz)	600	600	600
Ave. Power Density 1064 (W/cm <sup>2</sup> ) Threshold	300	3000	4000
Ave. Power Density 532 (W/cm <sup>2</sup> ) Threshold	10	2000	2500
Resistivity (Ohm.cm)	10 <sup>7</sup>	10 <sup>9-10</sup>	10 <sup>10-11</sup>

\*Curve dynamics time depends of absorption in the crystal bulk at 532 nm-radiation under self-radiation (532nm). This parameter indicates the effectiveness and gray tracking resistance of the crystals.

This suggests the crystal's life time - the smaller the value, the longer the expected lifetime.

**Raicol Crystals, founded in 1995, is a global leader in nonlinear and EO crystal growth, fabrication and assembly. Raicol offers a unique set of benefits to its customers:**

- 50 years of crystal growth know-how and experience
- Global pioneers of RTP, HGTR KTP and PPKTP crystal production and assembly
- One-stop shop, from crystal growth and coating, through to EO cell assembly
- Capabilities for both mass-production and small R&D quantities
- Fast delivery time
- Unmatched crystal quality
- Custom designs available upon request