

Laser Crystals

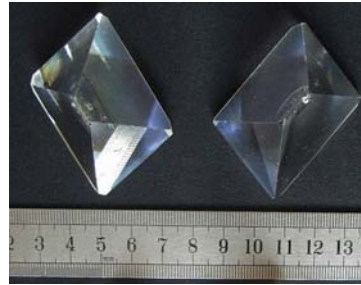
**NLO Crystals**

Birefringent Crystals

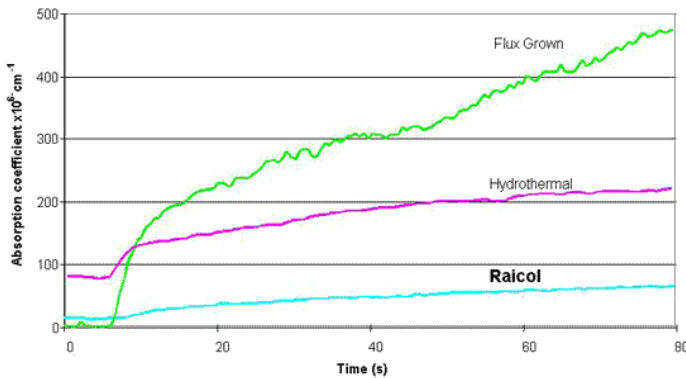
AO and EO Crystals

**HGTR-KTP**

## Introductions


**HGTR-KTP: High Gray Track Resistance (HGTR) KTP for CW and high average power SHG**

HGTR KTP crystals have gray track resistance sufficiently greater than typical flux grown KTP. This is possible due to advances in the controlled growth of KTP crystals, using proprietary modified fluxes and heat treatment. These HGTR KTP crystals are suitable for high power density applications, where regular flux-grown KTP crystals would suffer from gray track damage.



## Gray-tracking Effect in KTP Crystals

 IR (1064 nm) absorption growth under 10 KW/cm<sup>2</sup> of green light (514 nm)

Data on flux grown and Hydrothermal crystals taken from: A. Alexandrovsky, M. Fejer and G. Mitchell, "CW gray-track in KTP", CLEO 99, paper CFF5. Raicol Data measured by A. Alexandrovsky at Stanford University in the GRIIRA (Green Induced Infrared Absorption) test, an infrared laser beam passes through the KTP element. The initial measurement (at time 0) is the infrared absorption of the crystal. After a few seconds, a green laser beam is allowed to go through the crystal as well. The green light causes an increase in the IR absorption of the crystal. This effect has been shown to correlate with gray tracking in KTP crystals. The above graph shows that the Raicol HGTR KTP elements have both a lower initial IR absorption, and are affected less by the green laser. Thus, Raicol HGTR KTP is expected to have a higher gray track resistance than regular flux grown crystals or hydrothermally grown crystals.

## Specification

Items	Specifications
Aperture	up to 8 x 8 mm <sup>2</sup>
Length	up to 12 mm
Phase-matching accuracy	$\pm 0.5^\circ$
Flatness	$\lambda/10$
Parallelism	Standard: 20 arc sec On request: 5 arc sec
Perpendicularity	5 arc min
Surface Quality	none at x 100 magnification
DBAR coating	R < 0.2 % @ 1064 & 532 nm
Damage threshold	DBAR coated: > 750 MW/cm <sup>2</sup> @ 1064 nm, 10 nsec pulse Uncoated: > 750 MW/cm <sup>2</sup> @ 1064 nm, 10 nsec pulse

HGTR-KTP

Crystal

HKTP 01