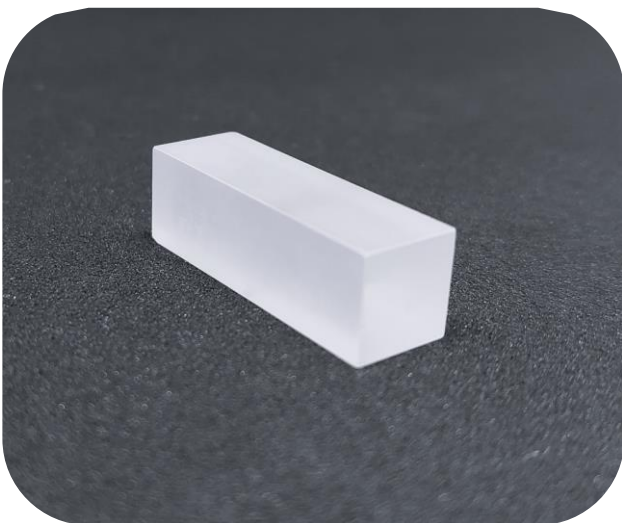


LBO – Lithium triborate

>10 J/cm² @ 355 nm, 10 ns, 10 Hz

160 nm – 2600 nm



Due to the high damage threshold, wide transparency range LBO – Lithium triborate crystals are mostly used for second harmonic generation (SHG) a.k.a. frequency doubling and third harmonic generation (THG). Crystals can be heated up for protection or performance stabilization and then they can be used in high power applications.

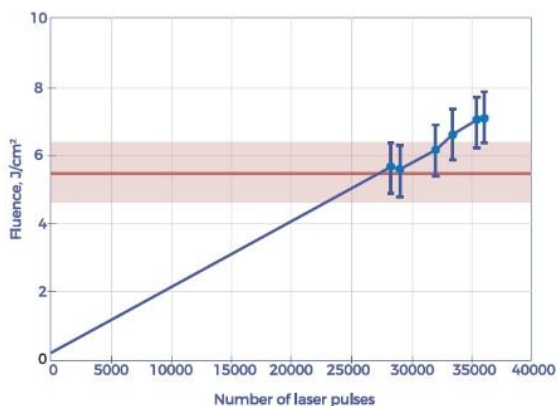
3photon leading advantage is high damage threshold of **>10 J/cm² @ 355 nm** (for single-band) AR coated LBO crystals, which allows great performance at very high intensities with high conversion effectivity.

MULTI-PASS CONFIGURATION

LBO for THG

S1&S2: AR @ 355+532+1064 nm;

LIDT > 5.5 J/cm² @ 355 nm

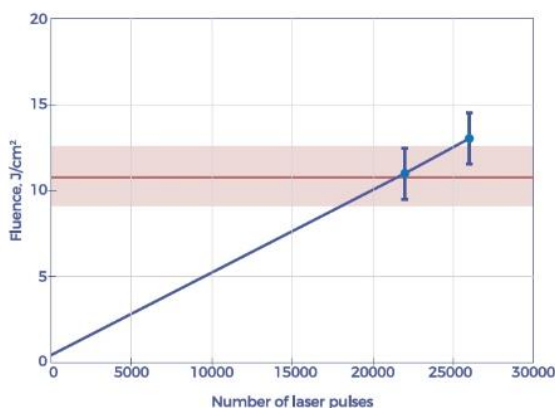


SINGLE-PASS CONFIGURATION

LBO for THG

S1: AR @ 1064 +532 nm; S2: AR @ 355 nm;

LIDT > 10 J/cm² @ 355 nm



Advantages & Features

- Transparency range from 160 nm to 2600 nm;
- Low absorption @ 340-1064 nm
- No Gray-tracking problem, best for high power second harmonic generations (SHG)
- Broadband or multi-wavelength anti-reflective (AR) or Protective (P) coatings for OPA/OPO applications;
- High Laser-Induced Damage Threshold (LIDT) for a third harmonic generation (THG) $>10 \text{ J/cm}^2$ @ 355 nm, 10 ns; 10 Hz (see the graph)
- Non-Critical Phase-Matching (NCPM) conditions for SHG @ 1064 nm (150 deg.C), with no walk-off displacement (ovens available upon request).
- Technical consultation or performance simulations for particular application available upon request.

Applications

LBO crystals are widely used in various laser systems, diode-pumped, medium and high-power lasers:

- Industrial Lasers for material processing, cutting, engraving;
- Research and development (R&D) lasers used by Universities, research centers;
- Medical lasers, especially in ophthalmology applications and hair or tattoo removal;
- Military and defense lasers.

Applications in lasers

Lasers with Neodymium-doped medium (Nd:YAG, Nd:YLF, Nd:YVO4, Nd:YAP, Nd:KGW)

- High power and/or widely tuned optical parametric amplifiers (OPA) and oscillators (OPO) of both Type I and Type II phase-matching
- Frequency doubling and tripling (2nd and 3rd harmonic generation)

CW lasers

- Efficient and broad non-critical phase-matching (NCPM) frequency conversion of CW and quasi-CW

Ti:Sapphire ($\text{Ti}^{3+}:\text{Al}_2\text{O}_3$), Alexandrite ($\text{Cr}^{3+}:\text{BeAl}_2\text{O}_4$), Cr:LiSAF ($\text{Cr}^{3+}:\text{LiSrAlF}_6$),

Cr:LiSAF ($\text{Cr}^{3+}:\text{LiCaAlF}_6$), and Dye lasers

- Frequency doubling (2nd harmonic generation)