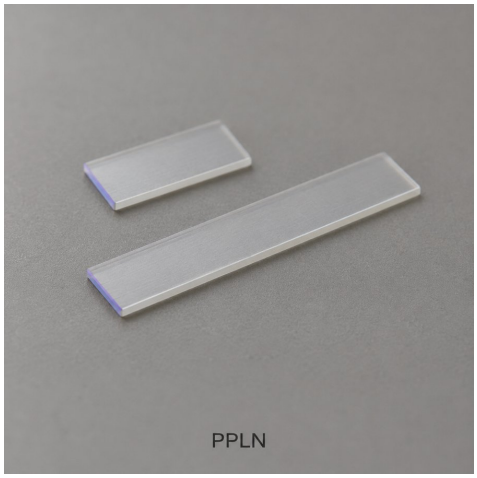
PPLN (Periodically Poled LiNbO3) Crystal for SHG, OPO and DFG, 0.4–4.5 µm

Model WQ-NLC-PPLN · waveqvanta.com/products/ppln-periodically-poled-lithium-niobate-crystal

PPLN (periodically poled lithium niobate) is a quasi-phase-matched nonlinear crystal transparent from 0.4 to 4.5 µm, covering the visible, near-IR and mid-IR. With an effective nonlinear coefficient of about 17.3 pm/V, it allows single-pass conversion efficiencies of up to 80% with pulsed lasers. MgO-doped PPLN (MgO:PPLN) has a much higher damage threshold and is the standard choice for high-power operation.



Key features

- Transparency range 0.4–4.5 µm
- Effective nonlinear coefficient about 17.3 pm/V
- Single-pass conversion efficiency of up to 80% with pulsed lasers
- MgO:PPLN version with a higher damage threshold for high-power use
- OPO and OPA pumped at 1064 nm or 1550 nm give continuously tunable 1.5–4.5 µm output

Specifications

Material	Periodically poled lithium niobate (LiNbO3)
Doping Option	MgO-doped (MgO:PPLN) for high-power operation
Phase Matching	Quasi-phase matching (periodic poling)
Transparency Range	0.4–4.5 µm
Effective Nonlinear Coefficient	≈17.3 pm/V
Single-Pass Conversion Efficiency (Pulsed)	Up to 80%
SHG Wavelengths	1064 nm → 532 nm; 1550 nm → 775 nm
OPO/OPA Pump Wavelengths	1064 nm, 1550 nm
OPO/OPA Tuning Range	1.5–4.5 µm

Typical applications

- SHG of 1064 nm to 532 nm for compact green lasers, and of 1550 nm to 775 nm for fiber-laser frequency doubling
- Sum-frequency generation (SFG)
- OPO and OPA pumped at 1064 nm or 1550 nm, tunable over 1.5–4.5 µm
- Difference-frequency generation (DFG)
- Tunable OPO light sources, ultrafast spectroscopy and quantum optics experiments

Values are typical and subject to change. Custom sizes, cut angles and coatings are available on request.