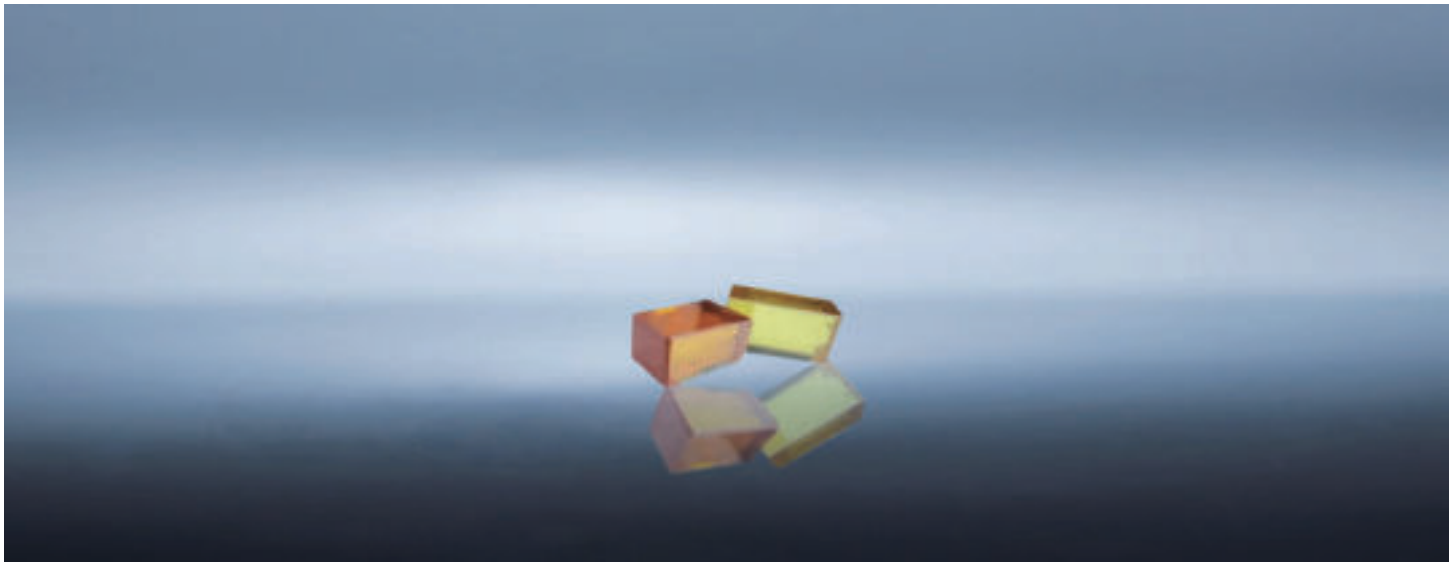
$AgGaGeS_4$



DESCRIPTION

$AgGaGeS_4$ (Silver Germanium Gallium Sulfide) is a negative biaxial crystal with an orthogonal crystal system and a larger nonlinear coefficient than AgGaS. Compared with conventional materials, $AgGaGeS_4$ has a wide transmission band (0.5~11.5 μm), a small absorption coefficient (α<0.005 cm^{-1}), and a high threshold of laser damage resistance (30 ns, 9.55 μm, 230 MW/cm^2), which is about 1.6 times that of $AgGaS_2$(149 MW/cm^2), $ZnGeP_2$ (142 MW/cm^2) 1.6 times, suitable for titanium gem 800 nm, Nd:YAG 1 μm laser pumping birefringence (0.057); can be applied to CO_2 laser frequency doubling, can withstand high-power laser pumping, output high power mid and far infrared laser.

FEATURES

- High output power
- Low absorption coefficient
- High laser damage threshold
- Withstand high power laser pumping
- High nonlinear optical coefficient wide transmission range

APPLICATIONS

- Optical parametric oscillation
- Optical parametric amplification

PROCESSING PARAMETERS

Orientation accuracy	<+-0.1°
Surface finish	20/10 per MIL-O-13830A
Face Type	λ/8@632.8nm When T>=1mm
Through surface tolerance	+0/-0.1mm
Length Tolerance	±0.1mm
Parallelism	30 ″
Perpendicularity	10′
reverse side	<0.2mm×45°

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$AgGaGeS_4$

PHYSICAL AND CHEMICAL PROPERTIES

Nonlinear optical coefficients	d_{31}=15 pm/V
Transmittance range	0.5-11.5μm
Absorption coefficient	0.05 cm^{-1}@1064 nm
Damage Threshold	＞1.2J/cm^2@1064nm
Crystal Structure	Orthogonal crystal system, Fdd2 space group
Cell parameters	a=12.015Å,b=22.904Å,c=6.874Å
Melting point	850℃
Band Gap	2.78eV
Transmittance range	0.5-11.5μm
Birefringence	0.0751@0.5μm
	0.0656@0.6μm
	0.0582@0.8μm
	0.0555@1.064μm
	0.0545@2μm
	0.0516@4μm
	0.0333@10.6μm
	0.0301@11.5μm

SPECTRA