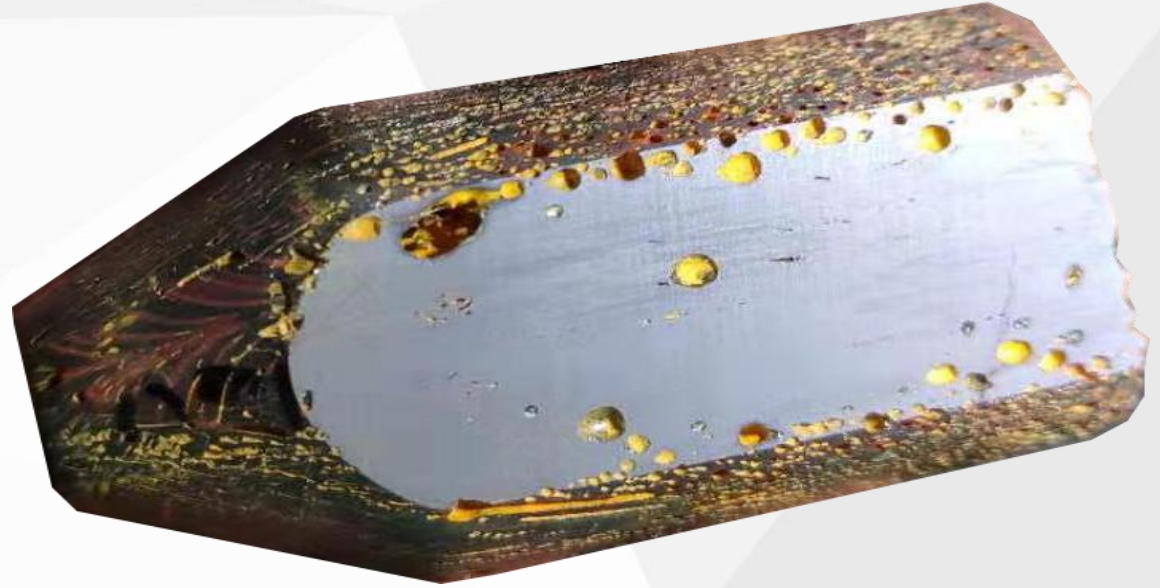


BaGa₂GeSe₆ crystals

The BaGa₂GeSe₆ crystal has a high optical damage threshold (110 MW/cm²), a wide spectral transparency range (from 0.5 to 18 μm) and a high nonlinearity ($d_{11} = 66 \pm 15$ pm/V), which makes this crystal very attractive for frequency conversion of laser radiation into (or within) the mid-IR range. It was proved probably the most efficient crystal for second harmonic generation of CO- and CO₂-laser radiation. It was found that a broadband two-stage frequency conversion of multi-line CO-laser radiation in this crystal is possible within 2.5-9.0 μm wavelength range with higher efficiency than in ZnGeP₂ and AgGaSe₂ crystals.



BaGa₂GeSe₆ crystals are used for nonlinear optical frequency conversion in their transparency range. The wavelengths at which maximum conversion efficiencies can be obtained and the tuning range for difference-frequency generation are found. It is shown that there are wavelength combinations at which the effective nonlinearity coefficient varies only slightly in a wide frequency band.

BaGa2GeSe6 crystals



BaGa2GeSe6 crystal's sellmeier equations:

$$n_o^2 = 7.39367 + \frac{0.27086}{\lambda^2 - 0.06961} + \frac{1513.10}{\lambda^2 - 1237.35},$$

$$n_e^2 = 8.11658 + \frac{0.30287}{\lambda^2 - 0.13199} + \frac{2197.51}{\lambda^2 - 1408.89},$$

(0.78 ≤ λ ≤ 10.5910),

Technical Properties	
Dimension tolerance	(W +/-0.1 mm) x (H +/-0.1 mm) x (L + 1 mm/-0.5 mm)
Clear aperture	> 90% central area
Flatness	λ/8 @ 633 nm for T>=1 mm
Surface Quality	Scratch/dig 60-40 after coating
Parallelism	better than 30 arc seconds
Perpendicularity	10 arc minutes
Orientation accuracy	<30''