

CdS CdTe ZnSe ZnO

II-VI Compound Semiconductor Crystals

With advance in doping and junction fabrication technology of II-VI semiconductors, these materials are likely to shoot in prominence in the near future. Their direct band gap nature, their large range of transparency, and the availability of a wide choice of band gap offer interesting device possibilities. However, the growth of large area single crystal remains difficult and challenging. MTI is able to offer medium sized, high quality single crystal of CdS, CdTe, ZnSe and ZnO at reasonable price.

	CdS	CdTe	ZnSe	ZnO
Growth Method	PVT	PVT	PVT	Hydro-thermal
Structure	Hexagonal P63mc	Cubic F43m	Cubic F43m	Hexagonal P63mc
Lattice Constant (Å)	a = 4.1367 c = 6.7161	a = 6.483	a = 5.6685	a=3.325 c=5.213
Mol. weight	144.48	240.01	144.34	81.39
Density (g/cm ³)	4.821	5.851	5.264	5.605
Melting Point (°C)	1287	1047	1517	1975
Heat Capacity (J /g.k)	0.3814	0.210	0.339	0.125 cal/gm
Thermal Expansion (10 ⁻⁶ /K)	4.6 // a 2.5 // c	5.0	7.1	6.5 // a 3.7 // c
Thermal Conductivity (W /m.k at 300K)	2.7	6.3	13	30
Transparent wavelength (μ)	0.52 ~ 14.8	0.85 ~ 29.9	0.51 ~ 19.0	0.4 ~ 0.6
Refractive Index	1.708 (o) 1.723 (e)	2.72	2.5	1.922 (o) 1.936 (e)
Max. Crystal size (mm)	25x25x15	25 x 10 x 10	25x25x15	20x20x10
Application	X-ray detector, junction devices, substrate for epitaxy, crystal pieces for evaporation source	X-ray detector; IR optics; Substrate for epitaxy; crystal pieces for evaporation source	IR optics for CO2 laser, lenses, window; Beamsplitters; Substrate for epitaxy, Crystal pieces for evaporation source	Substrate for epitaxy of GaN (blue LED), wide band junction devices



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