

# Fluoride Crystals Properties

MTI supplies all kinds of high quality fluoride single crystals. These crystals have been widely used for infrared optical components, such as window, mirror, lens, prism and substrate. MTI has a state of art processing facility in China and provides you cost effective and high quality components.

Chemical formula	BaF <sub>2</sub>	CaF <sub>2</sub>	MgF <sub>2</sub>	LiF
Crystal structure	Cubic	Cubic	Tetragonal	Cubic
Lattice constant (Å )	6.196	5.462	a = 4.64 c = 3.06	4.026
Melting point ( °C )	1354	1418	1255	870
Density ( g / cm <sup>3</sup> )	4.88	3.18	3.18	2.60
Hardness	3	4	6	4
Thermal expansion coef. ( °C <sup>-1</sup> × 10 <sup>-6</sup> )	18.1	18.85	13.7	37.0
Refractive index	n <sub>o</sub> 1.47443	n <sub>o</sub> 1.43382	n <sub>o</sub> 1.37740 n <sub>e</sub> 1.38945	n <sub>o</sub> 1.39212
Transmission waveband (microns)	0.15 - 13.00	0.11 - 12.00	0.11 - 7.5	0.11 - 7.0
Transmission efficient	> 93% @ 5 m > 75% @ 0.2 m	> 94% @ 5 m > 85% @ 0.2 m	> 93% @5 m > 85% @ 0.2 m	> 85% @ 5 m > 65% @ 0.2 m
Chromatic dispersion (n <sub>f</sub> -n <sub>c</sub> )	0.00578	0.00455	0.00355	0.00395
Temperature coef. (dn/dt × 10 <sup>-6</sup> )	-15.2 ~ 6.2@ 0.8 m	-10. 6 @ 0.8 m	2.3 ~1.7 @ 0.4 m	-12.7 @ 0.6 m
Crystal growth method	Bridgeman	Bridgeman	Bridgeman	Bridgeman
Cleavage plane	<111>	<111>	<100> or <110>	<100>
Max. Crystal size ( mm)	f 2" x 80	f 8" x 150	f 4" x 100	f 4" x 80
Application	IR and UV window , prism, substrate	IR window and Lens, prism	VUV window and mirror, lens	UV window and prism, without deliquescence

Please kindly specify your crystal size, faces to be polished and orientation, and quantity; we will reply you within 24 hours

If you have any need for fluoride single crystal substrate and components, please feel free to contact us at

[info@mtixtl.com](mailto:info@mtixtl.com)