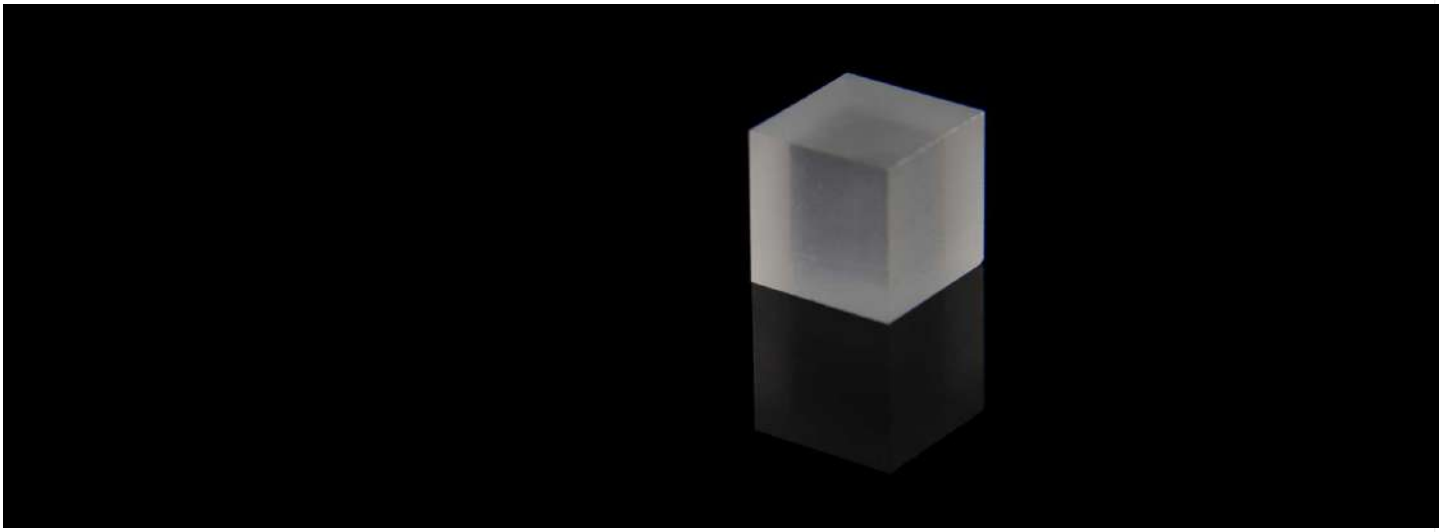
KCl



DESCRIPTION

Potassium Chloride (KCl) is hygrosopic. The crystal often applied for infared transmission windows and FTIR spectrophotometers. The KCl windows have low refractive index and high threshold damage. So it's very useful for sputter barrier windows in CO2 lasers. KCl single crystal uniform texture and transparent, has a high infrared transmittance, the transmittance greater than 90% when thickness less 10mm and in the range of 4000-500cm-1, no impurity absorption. KCl single crystal as a laser window material, the optical performance is excellent.

APPLICATIONS

- Substrate for Epitaxial growth
- Be used in the production of infrared spectroscopy analyzer
- Ultraviolet and infrared optical components
- Prisms, lenses, filters and various laser windows,
- infrared devices, optical, laser crystal instruments
- IR spectroscopy
- Windows for CO2lasers
- Protection windows for cutting lenses

FEATURES

- Wide-band good conductor
- Water-soluble, easy to deliquesce and cannot be chemically polished
- Can grow epitaxial films on a featureless substrate

KCl

PARAMETERS

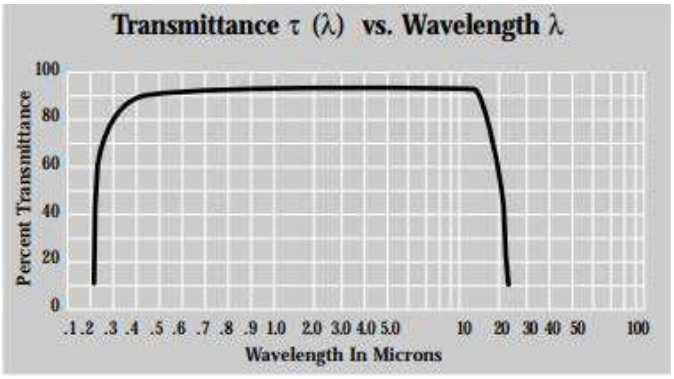
Material and Specifications

Orientation	<100>, <110>, <111>
Orientation Tolerance	< 0.5°
Parallelism	5″
Perpendicularity	3′
Surface Quality	10-5 (Scratch/Dig)
Wavefront Distortion	<λ/4@632 nm
Surface Flatness	<λ/8 @632 nm
Clear Aperture	>90%
Chamfer	<0.1×45°
Thickness/Diameter Tolerance	±0.05 mm

Physical and Chemical Properties

Crystal Structure	Cubic
Symmetry Class	m3m
Lattice Constants	6.291 Å
Density	1.989 g/cm3
Melting Point	776°C
Cleavability	(100), perfect
Thermal Conductivity (W·m-1·K-1)@46°C	6.53
Specific Heat (J·kg-1·K-1)	690
Thermal Expansion (10-6·K-1@60°C)	34.1 … 38.3
Hardness (Knoop)	7.2@<110>, 9.3@<100>
Vickers Microhardness (GPa)	0.15
Young's Modulus (GPa)	16.8@<110>, 38.2@<100>
Shear Modulus (GPa)	6.3@<110>, 10.8@<100>
Bulk Modulus (GPa)	17.36
Rupture Modulus (GPa)	4.41×10-3
Elastic Coefficient (GPa)	C11=40.2, C12=6.7, C44=6.29

Spectrum



Optical Characteristics

Transmission Range	0.21 … 30μm
Refractive Index	1.488@0.6μm, 1.454@10.6μm
Reflective Loss	6.8%@10.0μm
Reststrahlen	63.1μm
Poisson Ratio	0.134

Index of Refraction

λ(μm)	n	λ(μm)	n	λ(μm)	n
0.2	1.717	5	1.4703	11	1.4527
0.5	1.4968	6	1.4683	12	1.4463
1	1.4796	7	1.4659	12.5	1.446
2	1.4751	8	1.4632	15	1.4325
3	1.4735	9	1.4601	20	1.3947
4	1.472	10	1.4566	30	1.2626