

**Title:** Optical Material / Crystals (Infrared)

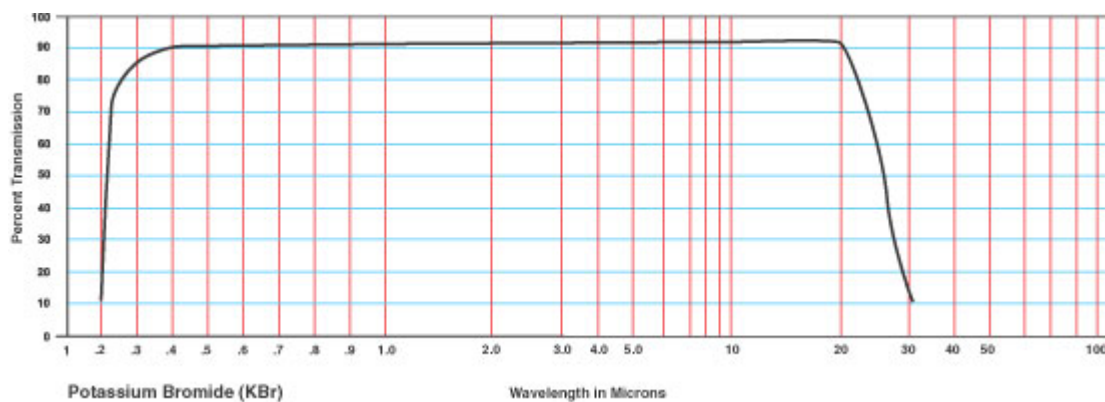
**Material / Specification:** Potassium Bromide for 0.23 to 25 Transmission

**Range / Description:** OPM-Potassium Bromide

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Potassium Bromide (KBr) is very soft, water soluble crystal; low cost and good transmission range; fogs. KBr is the most commonly used beamsplitter material for IR spectrophotometers where moisture sensitivity is not an issue.

### Internal Transmittance



Internal Transmittance $\tau_i(\lambda)$ vs. wavelength $\lambda$											
$\lambda, \text{MKM}$	0.2	0.5	1.0	3.0	5.0	9.00	10	12	15	20	30
$\tau_i(\lambda)$	0.48	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.92	0.26

Refractive Index $n$ vs. Wavelength $\lambda$																
$\lambda, \text{MKM}$	0.2	0.5	1.0	2.0	3.0	5.0	7.0	8.0	9.0	10	11	12	12.5	15	20	30
$n(\lambda)$	2.09	1.57	1.54	1.53	1.53	1.53	1.53	1.53	1.52	1.52	1.52	1.52	1.52	1.51	1.49	1.42

Optical Properties	
Transmission Range	0.23 to 25
Refractive Index	1.527 at 10
Refractive Loss	8.3% at 10
Crystal/Class Structure	Cubic FCC, NaCl, Fm3m
Cleavage Plane	(100) cleavage

Thermal Properties	
Thermal Expansion	$43 \times 10^{-6} / ^\circ\text{K}$ @300K
Thermal Conductivity	$4.816 \text{ W m}^{-1} \text{ K}^{-1}$ @ 319K
Melting Point	730°C
Specific Heat Capacity	$435 \text{ J Kg}^{-1} \text{ K}^{-1}$

Mechanical Properties	
Density	2.753 g/cc
Hardness (Knoop)	7 in <100> with 200g indenter
Youngs Modulus	26.8 GPa
Shear Modulus	5.08 GPa
Bulk Modulus	15.03 GPa
Poisson Ratio	0.203
Elastic Limit	1.1 MPa (160psi)
Molecular Weight	119.01

Chemical Properties	
Solubility	53.48g/100g water at 273K