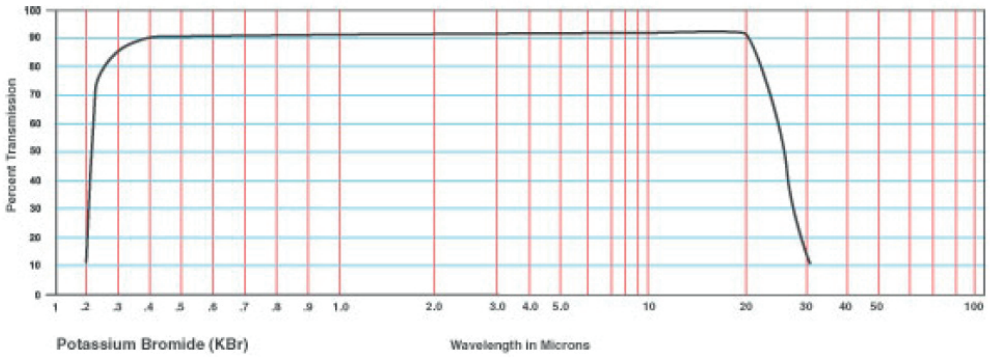
Optical material / crystals (Infrared)

Material / Specification: Potassim Bromide for 0.23µm to 25µm transmission
Range / Description: OPMI-POTASSIUM BROMIDE

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 $t_i(\lambda)$ vs. wavelength λ											
λ, 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 λ																
λ, 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(λ)	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

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

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

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

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