

# Potassium Bromide (KBr)

## Specialist Data Sheet

Product Name	Potassium Bromide (KBr)
Transmission Range	0.23 ~ 25 $\mu\text{m}$
Refractive Index	1.527 @ 10 $\mu\text{m}$
Reflection Loss	8.3% @ 10 $\mu\text{m}$ (2 surfaces)
Absorption Coefficient	$2 \times 10^{-3}$ @ 1064nm : $1.6 \times 10^{-4} \text{ cm}^{-1}$ @ 3.8 $\mu\text{m}$
Reststrahlen Peak	77.6 $\mu\text{m}$
dN/dT	$-40.83 \times 10^{-6} / ^\circ\text{C}$
dN/du	4.2 $\mu\text{m}$
Density	2.753 g/cc
Melting Point	7300 $^\circ\text{C}$
Thermal Conductivity	4.816 $\text{W m}^{-1} \text{ K}^{-1}$ @ 319K
Thermal Expansion	$43 \times 10^{-6} / ^\circ\text{C}$ @ 300K
Hardness	Knoop 7 in <100> with 200g indenter
Specific Heat Capacity	435 $\text{J Kg}^{-1} \text{ K}^{-1}$
Dielectric Constant	4.9 @ 1 MHz
Youngs Modulus (E)	26.8 GPa
Shear Modulus (G)	5.08 GPa
Bulk Modulus (K)	15.03 Gpa
Elastic Coefficients	C11=.34.5; C12=5.4, C44=5.08
Apparent Elastic Limit	1.1 Mpa (160 psi)
Poisson Ratio	0.203
Solubility	53.48g/100g water @ 273K
Molecular Weight	119.01
Class/Structure	Cubic FCC, NaCl, Fm3m, (100) cleavage

### Notes:

Potassium Bromide is produced in large ingots by the Kyropoulos growth method. It cleaves easily. With care it can be polished to a high standard under humidity controlled conditions.

### Application:

Potassium Bromide is one of the most useful materials for general purpose spectroscopic windows and applications where sensitivity to moisture is unimportant. KBr is the most commonly used beamsplitter material for IR spectrophotometers.



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### Refractive Index:

$\mu\text{m}$	No	$\mu\text{m}$	No	$\mu\text{m}$	No	$\mu\text{m}$	No
0.405	1.5898	0.643	1.5559	6.238	1.5329	19.91	1.4929
0.436	1.5815	0.707	1.5524	8.662	1.5290	23.86	1.4714
0.486	1.5718	1.014	1.5441	9.724	1.5270	25.14	1.4632
0.508	1.5684	2.440	1.5373	11.04	1.5240	28.00	1.4423
0.546	1.5639	3.419	1.5361	14.29	1.5150	30.00	1.4253
0.587	1.5600	4.258	1.5352	17.40	1.5039		

### Transmission Range Graph:

