

## Potassium Iodide (KI)

## MATERIALS DATA

Potassium Iodide is produced in large ingots by the Kyropoulos growth method. Potassium Iodide cleaves easily. Potassium Iodide is only useful in controlled laboratory conditions as it is very soft and very water soluble.

**APPLICATIONS:** Potassium Iodide has few specific applications but has some uses in the very deep Infra Red.

Transmission Range	0.38 to 35 $\mu$ m
Refractive Index	1.6201 at 10 $\mu$ m (1)
Reflection Loss	10.6% at 10 $\mu$ m (2 surfaces)
Absorption Coefficient	4.5 x 10 <sup>-3</sup> @ 20 $\mu$ m (2)
Reststrahlen Peak	82 to 100 $\mu$ m
dn/dT	-50 x 10 <sup>-6</sup> K <sup>-1</sup>
dn/d $\mu$ = 0	2.1 $\mu$ m
Density	3.12 g/cc
Melting Point	682°C
Thermal Conductivity	2.1 W m <sup>-1</sup> K <sup>-1</sup> at 298K
Thermal Expansion	43 x 10 <sup>-6</sup> K <sup>-1</sup> at 298K
Hardness	Moh 5
Specific Heat Capacity	313 J Kg <sup>-1</sup> K <sup>-1</sup>
Dielectric Constant	4.94 at 2 MHz
Youngs Modulus (E)	31.49 GPa
Shear Modulus (G)	6.2 GPa
Bulk Modulus (K)	12 GPa
Elastic Coefficients	C <sub>11</sub> =27.4; C <sub>12</sub> =4.3; C <sub>44</sub> =3.7
Apparent Elastic Limit	n/a
Poisson Ratio	n/a
Solubility	127.5g/100g water at 273K
Molecular Weight	166.02
Class/Structure	Cubic FCC, NaCl, Fm3m, (100) cleavage

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(1) K.Korth, Z.Physik. Vol 84, p677-685 (1933)

(2) H.H.Li, Absorption Coefficients, Int.J.Therm, V1, No. 1, 1980



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$\mu\text{m}$	No	$\mu\text{m}$	No	$\mu\text{m}$	No
0.302	1.82769	0.405	1.71843	0.546	1.67310
0.768	1.6494	1.014	1.6396	2.360	1.6295
3.540	1.6275	4.130	1.6268	5.890	1.6252
7.660	1.6235	8.840	1.6218	10.02	1.6201
11.79	1.6172	12.97	1.615	14.14	1.6127
15.91	1.6085	18.10	1.603	19.00	1.5997
20.00	1.5964	21.00	1.593	22.00	1.5895
23.00	1.5858	24.00	1.5819	25.00	1.5775
26.00	1.5729	27.00	1.5681	28.00	1.5629
29.00	1.5571				

