Silver Bromide (AgBr)

Silver Bromide is grown in small ingots by sealed ampoule Stockbarger techniques. Silver Bromide is malleable and deep yellow, it darkens in sunlight, but less readily than Silver Chloride.

APPLICATIONS: Silver Bromide is useful material for very deep Infra Red applications where sensitivity to moisture is a problem. Silver Bromide crystal growth was developed relatively recently by the standards of many IR materials. The parameters of Silver Bromide have not been researched as thoroughly as those of Silver Chloride. This soft crystal deforms under heat and pressure and can be forged in polished dies to create Infra Red windows and lenses.

Transmission Range	0.45 to 35µm (1)
Refractive Index	2.167 at 10µm (1) (2)
Reflection Loss	23.9% at 10µm (2 surfaces)
Absorption Coefficient	Not known
Reststrahlen Peak	112.7µm
dn/dT	Not known
dn/dµ = 0	Not known
Density	6.473 g/cc
Melting Point	432 °C
Thermal Conductivity	1.21 W m^{-1} K^{-1} at 273 K
Thermal Expansion	30 x 10^{-6} K^{-1} at 273 K
Hardness	Knoop 7
Specific Heat Capacity	292 J Kg^{-1} K^{-1}
Dielectric Constant	13.1 at 1MHz (2)
Youngs Modulus (E)	31.97 GPa
Shear Modulus (G)	Not Known
Bulk Modulus (K)	44.03 GPa
Elastic Coefficients	C_{11}=56.3 C_{12}=32.3 C_{44}=7.25
Apparent Elastic Limit	26.2 MPa
Poisson Ratio	Not Known
Solubility	12 x 10^{-6}g/100g water at 20°C
Molecular Weight	187.78
Class/Structure	Cubic FCC, NaCl, Fm3m, No cleavage, cold flows

(1) Handbook of Optical Constants, ed Palik, V3, ISBN 0-12-544423-0
(2) White; Optical Properties of Silver Bromide. J.Opt. Soc. Am. V62, N2, (1973)

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µm	No	µm	No	µm	No
0.391	2.416	0.477	2.33	0.496	2.313
0.55	2.27	0.6	2.25	0.65	2.24
0.781	2.205	9.926	2.167	12.66	2.162