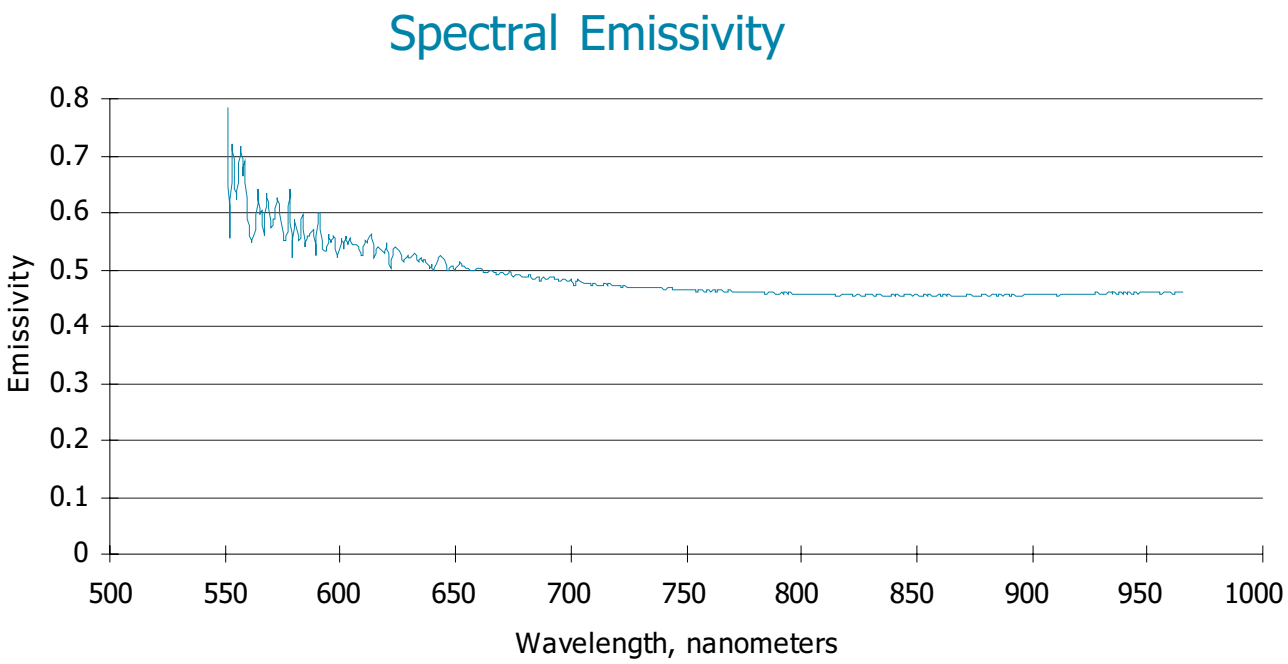
MOMENTIVE
performance materials

Emissivity Data for Boralectric® PBN Heaters

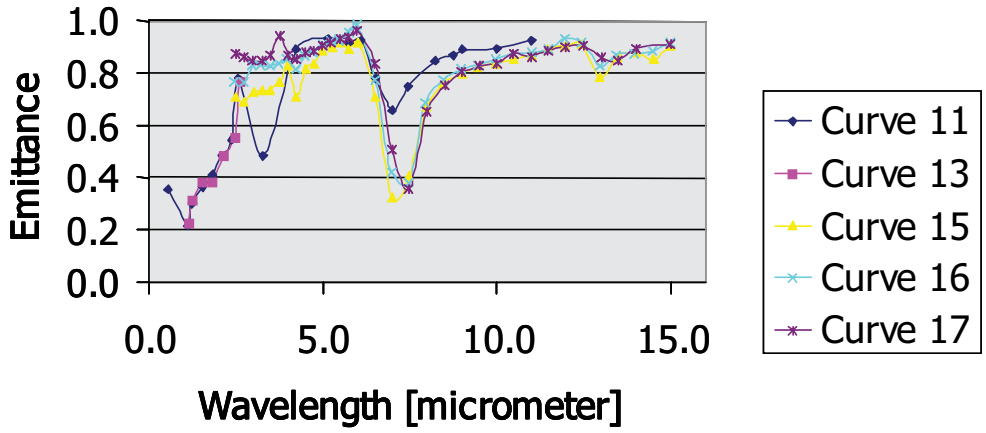


Notes:

- Construction is standard PBN capping layer on PG conductor on PBN base, approximately .25/.05/1.5 mm thicknesses.
- Sample temperature for data shown is 1012 °C.
- Values below 650 nm are for trending only; there is little radiation here and noise dominates.
- For optical pyrometry, use of wavelengths greater than about 750 nm should give reasonable black-body behavior.

Normal Spectral Emittance of PBN

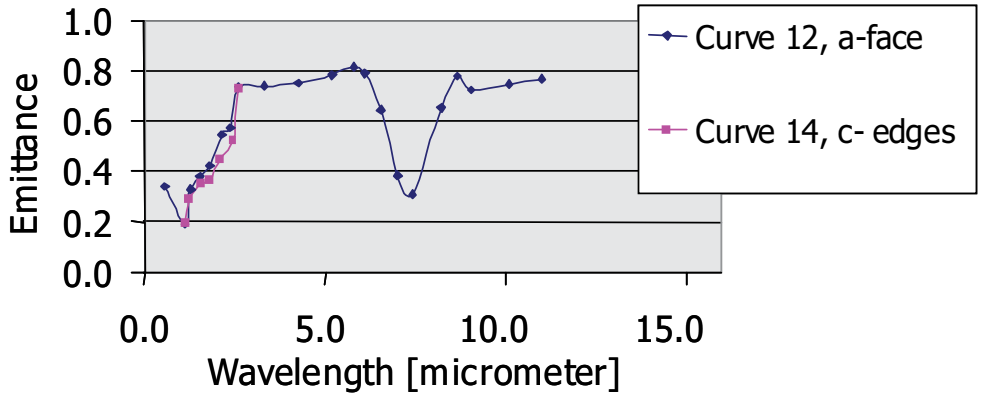
Basal planes, a-b surface



Curve No.	Ref. No.	Author	Year	Wave length Range, um	Temp. Range, K	Name and Specimen Designation	Remarks
11	T52946	Autio, G.W. and Seala, E.	1968	0.55-11	1098	Pyrolytic	Purity <0.0010 total metallic impurities; measured from A-Face (c-axis parallel to surface of (1010) faces); pyrolytic, made by vapor deposition process; prepared by High Temperature Materials, Inc.; surface mechanically polished; density ~2.2 g cm-3; specimen temperature between 1093 and 1103K; measured in purified hydrogen atm; probing technique used; data from figure; theta'=0 deg.
13	T52946	Autio, G.W. and Seala, E.	1968	1.1-2.6	1103	Pyrolytic	Similar to the above specimen and conditions except measured from A-face and polarizer axis parallel to c-axis.
15	T34724	Durand, J.L. and Houston, K.C.	1966	2.5-15	~1280	Pyrolytic	Specimen size about 2 x 3 x 0.5 in.; manufactured by High Temperature Materials, Inc., Lowell, Mass.; surface polished to a 4-6 um finish; AB surface (surface parallel to basal planes or planes of deposition) radiating; Beckman IR-9 spectrophotometer used; data from figure; theta'=0 deg.
16	T34724	Durand, J.L. and Houston, K.C.	1966	2.5-15	1670	Pyrolytic	Similar to above specimen.
17	T34724	Durand, J.L. and Houston, K.C.	1966	2.5-15	2020	Pyrolytic	Similar to above specimen.

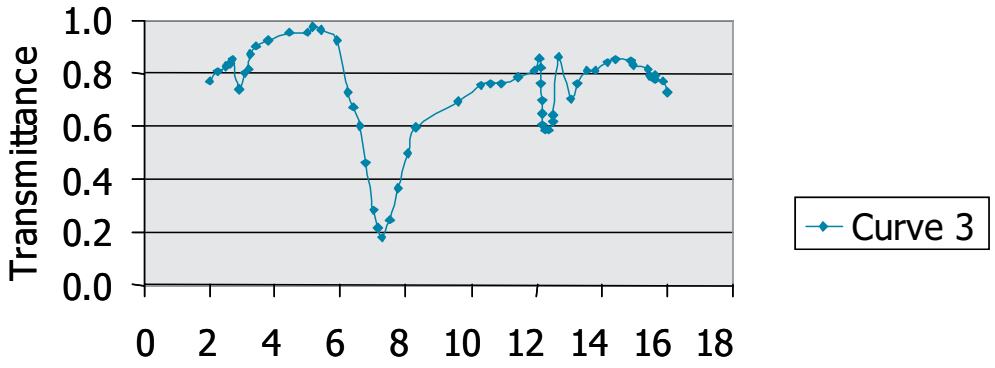
Normal Spectral Emittance of PBN

Edges, Perpendicular to c-axis



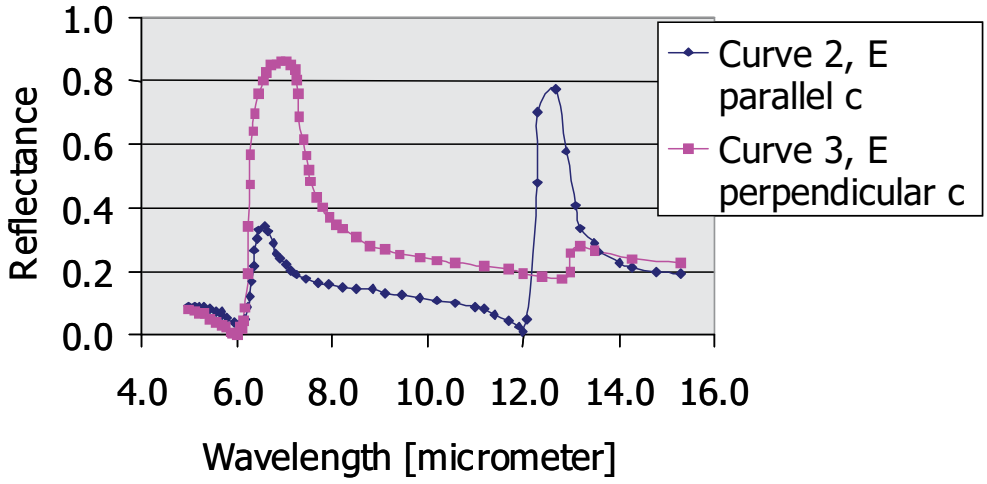
Cur. No.	Ref. No.	Author	Year	Wave length Range um	Temp Range K	Name and Specimen Designation	Remarks
12	T52946	Autio, G.W. and Scala, E.	1968	0.56-11	1098	Pyrolytic	Purity <0.0010 total metallic impurities; measured from A-face (c-axis parallel to surface of (1010) faces); pyrolytic, made by vapor deposition process; prepared by High Temperature Materials, Inc.; surface mechanically polished; density ~2.2 g cm-3; specimen temperature between 1093 and 1103K; measured in purified hydrogen atm; probing technique used; data from figure; theta'=0 deg.
14	T52946	Autio, G.W. and Scala, E.	1968	1.1-2.6	1103	Pyrolytic	Similar to the above specimen and conditions except polarizer axis perpendicular to c-axis.

Normal Spectral Transmittance of PBN



Cur. No.	Ref. No.	Author	Year	Wave length Range um	Temp. Range K	Name and Specimen Designation	Remarks
3	T60470	Brame, E.G. Jr., Margrave, J.L. and Meloche, V.W.	1957	2-16	293	Pyrolytic	Hexagonal crystal structure; disk 1 mm thick and 12 mm in diameter; Baird Associates Model B spectrophotometer used; smooth values from figure; measurement temperature not given explicitly, assumed to be 293K.

Normal Spectral Reflectance of PBN



Curve No.	Ref. No.	Author	Year	Wave-length Range um	Temp Range K	Name and Specimen Designation	Remarks
2	T39203	Geick, R., Perry, C.H., and Rupprecht, G.	1966	5-33	293	Pyrolytic	Hexagonal structure; samples supplied by High Temperature Materials, Inc.; linearly polarized light used with E parallel to c-axis of crystal; Perkin-Elmer Model 521 specrophotometer with reflection attachment used; measurement temperatuare not given explicitly, assumed to be 293 K; smooth values from figure; theta=0 deg., theat'=0 deg.
3	T39203	Geick, R., Perry, C.H., and Rupprecht, G.	1966	5-33	293	Pyrolytic	Similar to the above specimen except linearly polarized light used with E perpendicular to c-axis of crystal.

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