Table 1. *Application of empirical equation in the calculation of "K"*

Compound	Form	Main absorption wavelengths (λ, microns)	"K"	Per cent difference from average
BeF_2	qtz.	13.1	0.167	− 0.6
SiO_2	qtz.	9.15	0.170	+ 1.2
GeO_2	qtz.	11.5	0.169	+ 0.2
GeO_2	rutile	14.0	0.166	− 1.2
		Average	0.168	
BPO_4	qtz.	8.92	0.141	−16.0
$BAsO_4$	qtz.	10.45	0.151	−10.0
$AlPO_4$	qtz.	8.9	0.172	+ 2.4
$AlAsO_3$	qtz.	10.56	0.159	− 5.3
$GaPO_4$	qtz.	9.55	0.197	+17.2
$GaAsO_4$	qtz.	11.25	0.166	− 1.2
$FePO_4$	qtz.	9.7	0.179	+ 6.5
$GaSbO_4$	rutile	14.4	0.171	+ 1.8

For the ABO_4 compounds, arithmetical averages are used for the cation mass or atomic number components. A weighted average is used for the cation charge, calculated as

$$Z_{(A \cdot B)} = \frac{Z_A^2 + Z_B^2}{Z_A + Z_B}.$$

Molar refractivities

In Table 2 there are presented molar refractivities (*Rm*) of a few AX_2 and ABX_4 compounds having mainly the silica and rutile structures. The values are calculated from data in standard reference works[6,7,8], and from data newly obtained in this laboratory. The main purpose here is to show the order of magnitude and trend of *Rm* in the different known forms of the compounds. Thus for SiO_2 the *Rm* values of the glass, low cristobalite and low tridymite are about 3.6 per cent above, and that of coesite, 1.8 per cent below the value for quartz. The total percentage difference is very close to that found

[6] Data on Chemicals for Ceramic Use. Bulletin 118, National Research Council, Washington, D. C. (1949).

[7] J. D. H. Donnay and W. Nowacki. Crystal Data. Geol. Soc. Am., Memoir 60 (1954).

[8] Standard X-Ray Diffraction Powder Patterns. Circular 539, Nat. Bu. Standards, Washington, D. C., Vols. 1–7 (1953–1957).