Refractive Indices of Minerals and Synthetic Compounds

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Table S1 contains 2946 entries of minerals and synthetic compounds with the following information:

col A: Chemical composition of the individual specimen

Alt = tetrahedral Al

col B: Ideal chemical composition of the type material[1]

Vac = vacancy

col C: Mineral and compound name[1]

col D: Class[2]

col E: Subclass[2]

col F: Notes with additional information

uc = unit cell

DHZ = Deer, Howie and Zussman – see References RF-D1A, RF-D1B, RF-D2, RF-D2A, RF-D4, RF-D5B

Hydrogarnet compositions: When the OH content was not given, compositions were adjusted to [Si + (O_4H_4)] =~ 3.0

In general, the reference indicated in Table S1 applies to the refractive index data. The composition and structure are sometimes different. This is usually noted in column F

col G: Locality of minerals or designation as synthetic

cols H-K: Measured refractive indices with their mean values <n_D>obs at 589.3 nm

col L: Mean refractive index calculated from polarizability in col S using eq. (4)[3]

col M: Deviation between observed (col K) and calculated (col L) refractive index[3]

col N: Deviation $\left|\frac{n_{obs}-n_{calc}}{n_{obs}}\right| \cdot 100$ in percent[3]

col O: Remarks with designations for systematic effects yielding deviations > 2.5% in col N.

a = sterically-strained compounds with strong bond-valence deviations

b = compounds with edge- and face-sharing MO_6 octahedra (M = Fe^{3+}, Mn^{3+}, Ti^{4+}, V^{5+}, Mo^{6+} and W^{6+}

c = compounds with corner-sharing octahedra

d = alkali ion rich or oxide ion conductivity

col P: Molar volume V_m per formula unit

col Q: Anion volume calculated from V_m divided by the number of anions or H_2O

col R: Total polarizability calculated from <n_D>obs (col K) using eq. (3)

col S: Total polarizability calculated from individual electronic polarizabilities using eq. (1) for anions[3]

cols T-X: References including journal CODENs according to the CASSI notation of journals (see http://cassi.cas.org/search.jsp). References for books and other compilations see below (references marked with * in table)

[1] Ideal compositions and names of minerals are from the International Mineralogical Association as reported at http://rruff.info/ima on July 14, 2017.

[2] Class and Subclasses have been arranged according to Dana's classification scheme

[3] nd = not determined

References for Table S1 not listed with full information in cols. T to X

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