Supplementary Read-Me File: Instructions for Supplementary Table 2

An evolutionary system of mineralogy, Part VII: The evolution of the igneous minerals (> 2500 Ma)

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Supplementary Table 2 is an xlsx file that records information related to 919 mineral kinds proposed to occur as primary phases in igneous rocks. Mineral kinds are listed in Rows 3 to 921.

Column A provides the name of the mineral kind, which in most instances matches the approved name of an IMA-CNMNC mineral species. However, in 17 instances (blue highlight) we lump several species into one group (e.g., *biotite*, *tourmaline*) or recognize an amorphous phase as a valid natural kind (*obsidian*; *silicate glass*). Mineral names are repeated in Column N for convenience, and mineral chemical formulas appear in Column O.

Column B indicates the relative abundances of the 919 minerals with a scale from 1 to 4: 51 of the most abundant igneous minerals, often present in > 5 volume % (vol %), are designated "4," while 64 common accessory minerals (typically < 5 vol %) are listed as "3." In addition, Supplementary Table 1 lists 182 minor phases designated "2" and 622 rare minerals (known as trace minerals in 5 or fewer igneous rocks) designated "1."

The numbers of total occurrences of the commonest minerals appear in Column C; while the number of occurrences as a major phase with > 5 volume %, and occurrences as a minor with < 5 volume % are in Columns D and E, respectively. These counts are based on modal analyses of the 1850 igneous rocks, as tabulated in Supplementary Table 3.

Columns F through M represent 8 major types of igneous rocks: UMA = ultramafic; MAF = mafic; GRA = intrusive acidic rocks; RHY = extrusive acidic rocks; CGP = complex granite pegmatites; AGP = alkaline/agpaitic rocks; CAR = carbonatites; LAY = layered intrusions (see text for details). Under each of these columns a "1" indicates that the corresponding mineral has been identified from that host lithology. Note that these 8 columns correspond to paragenetic modes 7, 8, 19, 20, 34, 35, 36, and 37 in Hazen and Morrison (2022) on the paragenetic modes of minerals. The matrix elements highlighted in yellow indicate revisions to the Supplementary Table 1 of Hazen and Morrison (2022), based on new information from the survey of mineral modes in this study.

Reference:

Hazen, R.M., and Morrison, S.M. (2022) On the paragenetic modes of minerals: A mineral evolution perspective. American Mineralogist, 107, 1262-1287.