NEW MINERAL NAMES*

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Ferrobustamite


Two samples, one a synthetic crystal of CaFeSiO₄, the other “iron rhodonite” from Skye, Scotland, are shown to have the structure of bustamite, not of rhodonite. They are triclinic, space group $\text{A}1$ or $\text{A}1$, with unit cells, resp., $a = 7.691, 7.832; b = 7.112, 7.229; c = 13.765, 13.925 \text{Å}$, $\alpha = 90°22', \beta = 90°11', \gamma = 95°24'; a = 103°58', b = 103°21'$.

Analyses of the second sample by H. C. G. Vincent (in Tilley, Am. Mineral. 33, 736–738 [1948]) gave SiO₂ 50.00, FeO 9.29, MnO 1.22, CaO 38.66, MgO none, insol. 0.45, sum 99.82 percent. It had $G = 3.09, a = 1.640, t = 1.653, \gamma = 44°$ in section perpendicular to the zone of cleavages. A new probe analysis gave SiO₂ 53.30, FeO 10.14, MgO 0.06, MnO 1.58, CaO 34.63, sum 100.01 percent. These correspond, respectively to $\text{Ca}_9.10\text{Fe}_{10.86}\text{Mn}_{1.06}\text{Si}_3\text{O}_{12}$.

The limits of solid solution are discussed; the data of Rutstein (Am. Mineral. 56, 2040–2052) indicate that ferrobustamite can take up more Fe than wollastonite.

Ortho-armalcolite, Para-armalcolite


Two paragenetically contrasting forms of armalcolite (Am. Mineral. 55, 2136) are present in basalts from the Apollo 17 landing site. “These differ in optical properties, in crystal habit, and in distribution between coarse and fine-grained rocks.”

The name ortho-armalcolite is used for the blue-gray mineral found in fine-grained and vitrophyric basalts. The name para-armalcolite is proposed for tan euhedral crystals occurring in medium- to coarse-grained basalts, strongly anisotropic in reflected light and of a slightly higher reflectivity than ortho-armalcolite.

The two forms are compositionally indistinguishable (ranges and averages of probe analyses are given). The ortho-form is considered to be a primary crystallization product, the para-form to be the result of the decomposition of a pre-existing solid solution. “I do not intend at this stage to suggest that ortho and para-armalcolite are different minerals, although this may indeed turn out to be the case when X-ray crystallographic studies are complete.”

Discussion

The proposal is a disservice to mineralogical nomenclature; in the absence of definitive X-ray data, armalcolite, type I and type II, would have been adequate interim terms.

Sapphirine-1Tc


Sapphirine from granulites near Wilson Lake, Labrador, is triclinic, $a = 10.04, b = 10.38, c = 8.65 \text{Å}$, $\alpha = 107°33', \beta = 95°07', \gamma = 123°55'$, hence a polymorph of normal sapphirine (= sapphirine $-2M$), which is monoclinic, $a = 9.783, b = 14.401, c = 9.1929 \text{Å}$, $\beta = 110°17'$.

NEW DATA

Dimorphone


Re-examination of a sample of Vesuvian dimorphone showed that crystals of two distinct types are present (see Dana’s System, 7th ed., v. 1, p. 197). Dimorphone I (identical with synthetic $\text{As}_2\text{S}_3$) has space group $\text{Pnma}$ or $\text{Pn}2$, $a = 9.07, b = 8.01, c = 10.30 \text{Å}$, strongest lines $6.27 50 011, 5.16 100 111, 4.16 40 201, 3.12 62 212, 2.96 50 122$.

Dimorphone II has space group $\text{Pnma}$ or $\text{Pn}2\_a$, $a = 11.24, b = 9.90, c = 5.56 \text{Å}, Z = 4, G = 3.60$ calc. $3.58$ meas, strongest lines $4.89 100 111, 210, 020, 3.91 40 211, 214 50 241, 430, 1.620 50 143, 541, 423$.

NEW DATA

Garrelsite


S. GHOSE, AND H. H. ULRICH (1973) The crystal structure of garrelsite, $\text{NaBa}_2\text{Si}_6\text{B}_2\text{O}_{19}(\text{OH})_4$. Naturwissenschaften, 60, 349–350.

Analysis by electron microprobe gave $\text{BaO} = 51.52 \pm 0.30, \text{Na}_2\text{O} 3.33 \pm 0.02, \text{SiO}_2 = 13.81 \pm 0.30$ percent. A new analysis by B. Ingram gave $\text{Na}_2\text{O} = 3.5$ percent. Ca and Mg, reported in the original analysis, were absent in inclusion-free samples. These data lead to the formula $\text{Ba}_4\text{Na}_2\text{Si}_6\text{B}_2\text{O}_{19}(\text{OH})_4$.

Garrelsite is monoclinic, space group $C2/c$, $a = 14.669, b = 8.466, c = 13.438 \text{Å}$, $\beta = 114.21°, Z = 4$. It contains a pentaborate polyanion $(\text{B}_5\text{O}_{13})^{10-}$. 

* Minerals marked with an asterisk after the name were approved before publication by the Commission on New Minerals and Mineral Names, International Mineralogical Association.
Lovozerite*


New occurrences of unaltered material were found in alkalic rocks of the Khiline massif, Kola Peninsula. Two new analyses give the formula \((Na, Ca)_4(Zr, Ti)Si(O, OH)_{1.5}\). X-ray study showed that the mineral was not monoclinic, as previously reported, but rhombohedral, space group \(R\overline{3}m, R3\overline{2}, \text{ or } R3m\), \(a_b = 7.32, \alpha = 88^\circ 04', \text{ or } a 10.18, c 13.10\ \text{Å}\).

Nuffieldite


Nuffieldite was described by Kingston (Am. Mineral. 54, 574) as \(Pb,Cu,Bi,S_3\). New study shows the mineral to be orthorhombic, space group \(Pbnm \text{ (or } Pbn2_1)\), \(a 14.387, b 21.011, c 4.046\ \text{Å}\). These space groups require 8 or 4 equipoints, resp., so that the formula is modified to \(Pb,Cu(Pb, Bi)BiS_3\).

Tundrite


Infra-red study of tundrite from a new locality in the Khibina massif showed bands of carbonate; this was confirmed by spectra of the Greenland mineral (Am. Mineral. 53, 1780). The mineral is therefore a carbonate-silicate. A new analysis by M. E. K. gave \(SiO_2 10.21, TiO_2 10.29, Nb_2O_5 4.90, Fe_2O_3 0.24, CaO 1.26, ThO_2 0.20, TR_2O_5 50.96, Na_2O 6.92, K_2O 0.36, H_2O^- \text{ none}, \ H_2O^+ 3.75, \ CO_2 10.85, \text{ sum 99.94 percent}, \text{ corresponding to } (Na_{2.6}K_{0.0})(Ti_{3.4}Fe_{0.6}Th_{0.0})(Si_{11}O_{28}Fe_{0.5}Ti_{19}O_{30}H_2O) \text{ or } (Na, K)_3(Ti, Nb)_4(SiO_3)_4(CO_2)_4\). X-ray study showed the mineral to be triclinic, \(a 7.51, b 13.84, c 5.04\ \text{Å}, \alpha 98^\circ 00', \beta 70^\circ 40', \gamma 99^\circ 00', \text{ close to previous data}. \text{ DTA and TGA curves are given.}

Note

Rare earth compositions are not given, so it is uncertain whether this is tundrite or tundrite-(Nd).

DISCREDITED MINERALS

Khuniite-Hemihedrite


Khuniite was first described in 1970 (Am. Mineral. 55, 1813); new data were published in 1972, when it was pointed out (Am. Mineral. 58, 562) that it was probably identical with hemihedrite. Pertlik has re-examined khuniite from the type locality and finds the unit cell constants to be identical within the limits of error with those of hemihedrite.