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New Mineral Names*

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ALFLARSENITE*

G. Raade, J.D. Grice, and M.A. Cooper (2009) Alflarsenite, a new beryllium-silicate zeolite from a syenitic pegmatite in the Larvik plutonic complex, Oslo Region, Norway. Eur. J. Mineral., 21, 893–900.

Alflarsenite is a new beryllium-silicate zeolite with chemical composition close to $NaCa_2Be_3Si_4O_{13}(OH)\cdot2H_2O$. It is a late-stage hydrothermal mineral from a syenitic pegmatite in the Tuften larvikite quarry, Tvedalen, Larvik, Vestfold, south Norway. The syenitic pegmatites occur within the Larvik plutonic complex, which occupies more than 1000 km^2 in the southern Oslo Region. Closely associated minerals are calcite, analcime, and K-feldspar.

Intensity data for a small crystal ($10 \times 60 \times 200$ μm) was collected on a fully automated Bruker P4 four-circle Diffractometer. Alflarsenite is monoclinic, $P2_1$, with a = 7.1222(4), b = 19.8378(11), c = 9.8071(5) Å, β = 111.287(1)°, V = 1291.1(2) Å^3, Z = 4. The crystal structure was refined from single-crystal X-ray data to R_1 = 0.045 for 3283 observed reflections. Unit-cell parameters refined from the powder data are: a = 7.123(2), b = 19.856(5), c = 9.800(2) Å, β = 111.03(2)°, V = 1291.4(4) Å^3 (space group $P2_1$). The strongest eight reflections of the X-ray powder diffraction pattern [d_{obs} in Å(I_{obs},hkl)] are: 9.095(100,001), 6.279(42,$\bar{1}11$,110), 4.189(32,$\bar{1}22$,121), 3.972(76,$\bar{1}41$,140), 3.205(37,$\bar{1}13$,112), 2.964(70,$\bar{2}32$,230), 2.915(92,$\bar{1}33$,132), 2.757(33,$\bar{2}42$,240).

Wavelength-dispersive electron-microprobe (EMP) analyses were carried out with a Cameca SX100 electron probe at 15 kV operating voltage, 6 nA beam current, and a beam diameter of 10 μm. The empirical formula of alflarsenite (calculated on 16 O pfu) is $(Na_{0.99}Sr_{0.03}K_{0.01})_{\Sigma1.03}Ca_{2.01}Be_{2.99}Si_{3.98}O_{13}(OH)\cdot2H_2O$. The end-member formula is $NaCa_2Be_3Si_4O_{13}(OH)\cdot2H_2O$. The infrared spectrum was recorded with a PerkinElmer Auto-Image FTIR microscopy system. There are six sharp absorptions at 3668, 3652 (shoulder), 3621, 3555, 3521 (shoulder), and 3422 cm^{-1} and a less sharp absorption at 3131 cm^{-1}, all of which are due to O–H stretching.

Alflarsenite crystals are mainly colorless, grading into white toward the center of the spherules. In aggregates, the color is very pale beige. The streak is white, and the mineral is translucent to transparent with a vitreous luster. The Mohs hardness is estimated to ~4. Cleavage and parting were not observed; the mineral is very brittle and has an uneven fracture. It is nonfluorescent in short- and long-wave ultraviolet radiation.

Density measurements were not successful, as the tiny grains could hardly be observed in the heavy liquids. The calculated density, using the empirical formula and single-crystal unit-cell data, is 2.605 g/cm^3. The mineral is biaxial positive with refractive indices α = 1.578(1), β = 1.580(1), γ = 1.583(1), measured at 590 nm. The birefringence is low, 0.005. $2V$ (meas.) = 82(5)° from extinction curves and = 76(5)° by the Kamb method; $2V$ (calc.) = 79°. Axial dispersion was not observed. The optical orientation is Z = b, X ^ a = 45(2)°. Twinning occurs on {001}.

Alflarsenite is a framework beryllosilicate with a marked orthorhombic supercell, space group $Cmc2_1$. It is the framework and the Na and Ca atoms that have an orthorhombic $Cmc2_1$ structure; only the H_2O groups destroy the supercell symmetry, lowering it to $P2_1$. The m-plane of the orthorhombic cell becomes a {001} twin plane in the monoclinic cell. The Na, Ca, and H_2O groups are weakly bonded in cavities of the framework making it a zeolite-type structure. The zeolite structure consists of intersecting channels: five- and eight-membered channel rings along [010] and three-, six-, and eight-membered channel rings along [100] in the monoclinic structure. The only mineral structure this vaguely resembles is bikitaite with its corresponding five- and eight-membered channel rings along [010] and six-membered channel rings along [001]. Four Ca sites have six-, seven-, and eightfold coordination, and two Na sites have sevenfold coordination. The tetrahedral cation sites are well ordered with eight regular SiO_4 tetrahedra and six regular BeO_4 tetrahedra, four of which have an $(OH)^-$ group. All tetrahedra are four-connected in a framework arrangement.

Alflarsenite is named for Alf Olav Larsen (b. 1952), Norwegian self-taught mineralogist who has been involved in the description of six new mineral species: gadolinite-(Ce), chiavennite, tvedalite, grenmarite, heulandite-Ba, and eirikite. He has mainly studied the mineralogy of the syenitic pegmatites of the Larvik plutonic complex.

Holotype material is preserved in the Department of Geology, Natural History Museum, University of Oslo (catalog number 42108). A small part of the holotype material is housed at the Canadian Museum of Nature, Ottawa (catalog number CMNMC 86066). **K.T.T.**

• All minerals marked with an asterisk have been approved by the IMA CNMMC.

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BRONTESITE*

F. Demartin, C.M. Gramaccioli, and I. Campostrini (2009) Brontesite, $(NH_4)_3PbCl_5$, a new product of fumarolic activity from La Fossa crater, Vulcano, Aeolian Islands, Italy, Can. Mineral., 47, 1237–1243.

Brontesite was found in an active fumarole in a pyroclastic breccia. It was associated with bismuthinite, godovikovite, demicheleite-(Cl), demicheleite-(Br), alunite, IMA 2008-057 $[(NH_4)_4NaAl_2(SO_4)_4Cl(OH)_2]$, and IMA 2009-049 (BiSI). Brontesite occurs as aggregates of colorless to white tabular crystals up to 0.1 mm long. It has a pseudotetragonal habit, tabular on {010}; the other most common forms are {110}, {011}, and {121}; no twinning was apparent. The *a:b:c* ratio calculated from unit-cell parameters is 0.5348:1:5354. Brontesite has a white streak and a vitreous luster, no cleavage or fracture were observed. It is not hygroscopic and shows no fluorescence in short- or long-wave ultraviolet light. D_{meas} and D_{calc} are 2.72(1) and 2.728 g/cm^3, respectively. Optically brontesite is biaxial with an average index of refraction of 1.70(3) at 589 nm. The compatibility index is –0.011 (superior).

The chemistry of brontesite was determined by EDS at low current to avoid problems with decomposition. The average of six analyses (ranges in parentheses) is K 1.1(6) (0.9–1.2), Pb 47.8(5) (46.9–49.1), Cl 36.1(6) (35.2–36.7), Br 3.7(5) (3.1–4.2), and NH_4 11.3 (by difference). The gives an empirical formula (on the basis of 5 apfu for (Cl + Br) and 3 apfu for (NH_4 + K) of: $[(NH_4)_{2.87}K_{0.13}]_{\Sigma 3.00}Pb_{1.09}(Cl_{4.79}Br_{0.21})_{\Sigma 5.00}$; the idealized formula is $(NH_4)_3PbCl_5$, which requires: NH_4 12.32, Pb 47.25, Cl 40.43, total 100.00 wt%. The presence of ammonium was verified by peaks at 3165(vs), 3039(s), and 1401 (vs) cm^{-1} in the infrared spectrum and by microchemical tests using the Nessler reaction. No peaks for OH^- or H_2O were observed by infrared spectroscopy.

A powder X-ray diffraction pattern was obtained using a Bruker D8 diffractometer and Cu$K\alpha$ radiation. The strongest six reflections in the X-ray powder-diffraction pattern [d_{obs} in Å(I_{obs},*hkl*)] are 3.067(100,132), 2.020(80,342), 2.710(78,241), 1.910(78,134), 2.421(75,152), and 1.491(75,373). Single-crystal X-ray diffraction data were obtained using a Bruker Apex II diffractometer with a 2K CCD detector and Mo$K\alpha$ radiation. Brontesite is orthorhombic with space group *Pnma*, with a = 8.434(1), b = 15.759(2), c = 8.462(1) Å, V = 1124.7(2) Å^3, and Z = 4. The structure was refined using direct methods using to a R_F of 0.0238 for 1463 reflections [$I > 2\sigma(I)$ for 1739 independent reflections]. Brontesite is isostructural with Rb_3Pb_5Cl.

The name is for Brontes, one of the Cyclopes and a son of Uranus. Name and mineral are approved by the International Mineralogical Association (IMA 2008-039) and the holotype sample is held in the Reference Collection of Dipartimento di Chimica Strutturale e Stereochimica Inorganica of Università degli Studi di Milano (2008-03). **G.P.**

CHEGEMITE*

E.V. Galuskin, V.M. Gazeev, B. Lazic, T. Armbruster, I.O. Galuskina, A.E. Zadov, N.N. Persev, R. Wrzalik, P. Dzierżanowski, A.G. Gurbanov, and G. Bzowska (2009) Chegemite $Ca_7(SiO_4)_3(OH)_2$—a new humite-group calcium mineral from the Northern Caucasus, Kabardino-Balkaria, Russia. Eur. J. Mineral., 21, 1045–1059.

The new mineral chegemite $Ca_7(SiO_4)_3(OH)_2$, the calcium and hydroxyl analogue of humite, was discovered as a rock-forming mineral in high-temperature skarns in calcareous xenoliths in ignimbrites of the Upper Chegem volcanic structure, Northern Caucasus, Kabardino-Balkaria, Russia. Chegemite forms granular aggregates with grain sizes up to 5 mm and is associated with various high-temperature minerals: larnite, spurrite, rondorfite, reinhardbraunsite, wadalite, lakargiite, and srebrodolskite, corresponding to the sanidinite metamorphic facies.

A single crystal of chegemite was mounted on a Bruker Apex II three-circle CCD diffractometer using graphite monochromated Mo$K\alpha$ X-radiation for diffraction intensity data collection. The single-crystal unit-cell parameters are a = 5.0696(1), b = 11.3955(1), c = 23.5571(3) Å; V = 1360.91(4) Å^3, with Z = 4, space group *Pbnm.* The strongest lines of the powder X-ray diffraction pattern (Fe$K\alpha$-radiation) [d_{obs} in Å($I\%_{obs}$)] are: 1.907(10), 2.993(8), 2.700(8), 3.015(7), 2.720(7), 2.834(6), 3.639(5), and 3.040(5).

The empirical formula of the holotype chegemite (mean of 68 analyses) is $Ca_7(Si_{0.997}Ti_{0.003}O_4)_3(OH)_{1.48}F_{0.52}$. Reflectance infrared spectra were measured using a Bio-Rad FTS-6000 spectrometer equipped with an infrared microscope of the Bio-Rad UMA-500 type. The following FTIR bands (cm^{-1}) were found (strong bands are italic): 3565, 3558, *3550, 3542*, 3535, 3525, 3487, *3475*, 1011; 960, *927*; *906*, 889; *865*; 838, *820*, *800*, *756*, 718, *705*, *653*, 640, 610, *561*, *519*, 500, 443, *437*, and 417.

Chegemite is colorless and transparent in thin section. The color in massive samples varies from pink, yellow-pink, to white. The streak is white. It forms irregular grains, in rare cases individual crystals with rhombic cross-section. Twins, probably on (110), are occasionally noted. The cleavage is imperfect on (010) and the fracture is conchoidal. The micro-hardness VHN_{50} = 306–349 kg/mm^2 corresponding to Mohs' scale of 5.5–6. Holotype chegemite from xenolith 1 gave the following optical data: $\alpha = 1.621(2)$, $\beta = 1.626(3)$, $\gamma = 1.630(2)$, $\Delta = 0.009$, $2V_{Z,meas} = -80(8)°$, and $2V_{Z,calc} = -83°$. Pink chegemite from xenolith 7 is characterized by $\alpha = 1.630(2)$, $\beta = 1.636(2)$, $\gamma = 1.640(2)$, $\Delta = 0.010$, $2V_{Z,meas} = -81(5)°$, and $2V_{Z,calc} = -78°$. The measured density of the chegemite from xenolith 7 is 2.86(1) g/cm^3. The optical orientation of chegemite is: X = a, Y = b, Z = c. Gladstone-Dale's compatibility factors range from –0.007 (superior) for chegemite from xenolith 1 (using calculated density) to –0.055 (good) for chegemite from xenolith 7 (using measured density).

The crystal structure of chegemite corresponds to the humite structure-type. The framework of the chegemite structure is composed of zigzag chains of four symmetry-independent Ca octahedra M(1,2,3,4) linked by two types of isolated Si tetrahedra. A special feature of the chegemite structure is the strongly anisotropic smearing of O8 related to positional and chemical disorder. O8 is to 75% occupied by O and to 25% by F. O8 lies on a triangular plane with 2 × Ca4 and 1 × Ca3 in the corners. As is characteristic of OH-dominant humite-group minerals, two disordered H positions could be resolved.

The name chegemite derives from the Chegem River, where the new mineral was discovered in the headwater tributary area.

The holotype sample of chegemite is deposited in the Fersman Mineralogical Museum in Moscow, Russia, with the number 3731/1, and the single grain used for structural investigation is deposited in the Museum of Natural History in Bern, Switzerland, with the number NMBE 39571. **K.T.T.**

FLÖRKEITE*

C.L. Lengauer, U. Kolitsch, and E. Tillmanns (2009) Flörkeite, $K_3Ca_2Na[Al_8Si_8O_{32}]\cdot12H_2O$, a new phillipsite-type zeolite from the Bellerberg, East Eifel volcanic area, Germany. Eur. J. Mineral., 21, 901–913.

Flörkeite is a new phillipsite-type zeolite. It forms subparallel, short prismatic, pseudo-monoclinic crystals elongated along [100] and flattened on {010}, with a maximum length of 0.6 mm and a thickness of up to 0.1 mm. It was found in a Ca-rich xenolith from a quarry at the Bellerberg volcano (N 50° 21' 9" E7° 14' 3") near Ettringen, East Eifel volcanic area, Germany. Similar to the previous findings of zeolites, flörkeite occurs in small cavities of a pyrometamorphically modified Ca-rich xenolith of the Tertiary basement, which was enclosed with the leucite-tephritic lava. The vesicles of the type material are predominantly filled or coated with white, spherolitic intergrown masses of tobermorite, which is partially covered by a thin layer of thaumasite. Within the modified limestone, blue hauyne and wollastonite can be observed. Flörkeite has crystallized on tobermorite, thus representing the last, low-thermal alteration product of the xenolith.

Flörkeite is triclinic, space-group $P\overline{1}$, the unit-cell parameters in phillipsite-type setting are a = 19.965(1), b = 14.274(1), c = 8.704(1) Å, α = 88.37(1), β = 125.08(1), γ = 89.57(1)°, V = 2028.2(3) Å^3, Z = 2 and the a:b:c ratio is 1.399:1:0.610. The five strongest lines in the powder X-ray diffraction pattern [d in Å(I_{obs})] are: 3.235(100), 3.162(80), 3.135(80), 2.736(60), and 4.956(45).

Electron microprobe analyses yielded (wt%): Na_2O 2.32, K_2O 10.29, MgO 0.04, CaO 8.43, Al_2O_3 30.20, SiO_2 35.29, sum 86.57. A H_2O content of 15.57 wt% was derived from the single crystal structure refinement. The empirical formula calculated on the basis of Al+Si = 16 pfu is $K_{2.96}Ca_{2.04}Na_{1.02}Mg_{0.01}[Al_{8.03}Si_{7.97}O_{31.97}]\cdot11.72H_2O$ and the ideal formula can be given as $K_3Ca_2Na[Al_8Si_8O_{32}]\cdot12H_2O$.

The mineral is colorless, transparent, non-fluorescent, and has vitreous luster and a white streak. Tenacity is brittle with irregular fracture; no parting and an indistinct cleavage on {001} is observed. The Mohs' hardness was not determined; the calculated density based on the empirical chemical formula is 2.266 g/cm^3, and 2.270 g/cm^3 based on the single-crystal structure refinement. The mineral is biaxial negative with n_α = 1.506(2), n_β = 1.514(2), n_γ = 1.518(2), $2V_{\text{obs}}$ = 71.0(5)° ($2V_{\text{calc}}$ = 70.2°) at 589.3 nm and 297 K. The orientation of the indicatrix is X ^ c = 43°, Y ^ b = 40°, and Z ^ a = 8°. The dispersion is weak (r < v) and no pleochroism is observed.

Flörkeite represents the triclinically distorted, (Al,Si)-ordered analogue of phillipsite, with a $P2_1/m$ to $B2/b$ symmetry reduction of the framework topochemistry. The main feature of phillipsite-type framework structures is an almost orthogonal cross-linked system of double-connected 4-ring chains, a double crankshaft chain (cc) along [100] and a sinusoidal chain parallel $(40\overline{1})$. The doubling of the a-parameter and the reduction of the real symmetry to $P\overline{1}$ (is caused by an ordering of the extra-framework cations and H_2O molecules within the 8-ring channel system along [100], basically Ca-□-Ca, Na-Ca-Na, and H_2O-K-H_2O.

The mineral is named in honor of the German mineralogist and crystallographer Otto Wilhelm Flörke (b. 1926). The investigated holotype material is preserved at the mineral collection of the Naturhistorisches Museum Wien (NHMW), Austria, with catalog number 2009-IV-a. **K.T.T.**

GROATITE*

M.A. Cooper, F.C. Hawthorne, N.A. Ball, R.A. Ramik, and A.C. Roberts (2009) Groatite, Na Ca Mn^{2+}_2 (PO_4) $[PO_3(OH)]_2$, a new mineral species of the alluaudite group from the Tanco pegmatite, Bernic Lake, Manitoba, Canada: description and crystal structure. Can Mineral, 48, 1225–1235.

The type sample of groatite was collected on in the waste dump of the Tanco Mine, Lake Bernic Manitoba. The Tanco granitic pegmatite is a zoned petalite-subgroup pegmatite, located near the Manitoba-Ontario border about 180 km northeast of Winnipeg. The type sample was found in a vug in a spodumene-rich boulder. Groatite occurs as a 5–10 cm mass composed primarily of rhodochrosite, quartz, whitlockite, apatite, fairfieldite, an unidentified Na–Al phosphate, calcite, and crandallite, with minor overite, groatite, and metaswitzerite; a small mass of sphalerite with inclusions of galena and bismuthinite is also present.

Groatice occurs as 0.5 to 1 mm stellate sprays on whitlockite and an unidentified Na-phosphate. It also occurs as a tabular mass of intergrown acicular crystals. Groatite is believed to be the product of dissolution of lithiophosphate and lithiophilite by hydrothermal solutions. Groatite is colorless to pale yellow and translucent. Massive crystals are pale orange. Luster is vitreous and the streak is white; no fluorescence was observed. Mohs' hardness is 3, the crystals are brittle with a rough fracture. Parting or twinning are absent and the crystals were too small to observe cleavage. The calculated density is 3.213 g/cm^3. Optically groatite is biaxial positive, with α = 1.622(1), β = 1.634(1), γ = 1.663(1), $2V_{\text{obs}}$ = 67(1), $2V_{\text{calc}}$ = 66.5°, X ^ a = 35.4 (in β obtuse), Y ^ c = 10.1° (in β acute), Z || b. Groatite is nonpleochroic.

The chemical composition of groatite was determined using WDS. The average of four analyses gave the following results; P_2O_5 46.66, FeO 0.49, MnO 29.31, CaO 12.51, Na_2O 6.87, H_2O (calc.) 3.93, sum 99.77 wt% leading to an empirical formula of $Na_{1.02}Ca_{1.02}(Mn_{1.90}Fe^{2+}_{0.03})_{\Sigma1.93}P_{3.02}O_{10}(OH)_2$ on the basis of 10 O atoms and 2 (OH) per formula unit. Analysis of one sample by microXRF indicated the presence of zinc.

A powder X-ray diffraction pattern was obtained using a Debye-Scherer camera and Ni-filtered Cu$K\alpha$ radiation. The six strongest lines in the X-ray pattern [d_{obs} in Å(I_{obs}%,hkl)] are 3.187(100,$\overline{1}$12), 2.726(90,$\overline{4}$02,240), 6.204(80,020), 2.788(80, 330), 5.653(70,200), and 2.580(70,$\overline{1}$32,420). Groatite is monoclinic with space group $C2/c$, a = 12.5435(9), b = 12.4324(9), c = 6.7121(4) Å, β = 115.332(2)°, V = 946.07(19) Å^3, Z = 4 .Single-crystal X-ray diffraction data were obtained using a Bruker P4 diffractometer with a 4K CCD detector and graphite monochromated Mo$K\alpha$ radiation. The crystal structure was refined using direct methods; R_1 = 2.7% on the basis of 831 unique reflections. The structure consists of two tetrahedrally coordinated T sites occupied by P atoms. In the T2 site, P is coordinated by three oxygen atoms and one (OH) group. Two octahedral sites, M1 and M2, are occupied by Ca and Mn and an eight-coordinated site is occupied by Na. There is complete chemical ordering of Ca at M1, Mn at M2, and Na at A2. Groatite is isostructural with o'danielite, ideally $Na(Zn,Mg)_3(AsO_4)[AsO_3(OH)]_2$ another member of the alluadite group.

The name honors Lee A. Groat, professor of Mineralogy at the University of British Columbia, Vancouver, British Columbia, for his extensive contributions to pegmatite mineralogy. The type sample is held in the collection of the Royal Ontario Museum (M40501). **G.P.**

ZANGBOITE*

L. Guowu, F. Quingsong, S. Nicheng, B. Wenji, Y. Jingsui, X. Ming, M. Zhesheng, and R. He (2009) Zangboite, $TiFeSi_2$, a new mineral species from Luobusha, Tibet, China, and its crystal structure. Can. Mineral., 48, 1265–1274.

Zangboite was isolated from a heavy mineral separate taken from a 1500 kg sample of chromitite ore from the No. 31 orebody, group II in the Luobusha mining district, Qusum county, Shannan Prefecture, Tibet, China. The orebodies are part of an ophiolite complex in the Indus-Yarlong Zangbo suture zone. The complex consists mainly of harzburgite with minor dunite, mafic cumulate, pillow lava, and ophiolitic mélange.

Mineral species found in the separates include native metals, intermetallic compounds, Os-Ir alloys (with diamond inclusions), metallic carbides, and iron silicides (FeSi, $FeSi_2$, and $Fe_{0.84}Si_2$). The authors believe that zangboite and other associated intermetallic compounds originated in mantle materials picked up by bonninite melts from which the chromitites precipitated. The mantle materials were partly digested in the melt and the insoluble residues incorporated in the chromitite.

Zongboite occurs as tabular grains between 0.002 and 0.150 mm across. It is opaque, steel grey with an opaque streak and a metallic luster. It has a conchoidal fracture, no cleavage and an estimated Mohs' hardness of 5½. Density calculated from formula and unit cell is 5.09 g/cm^3. Reflectance values of the synthetic material in air (R%) are: 37.90 at 470 nm, 37.45 at 546 nm, 42.10 at 589 nm, and 43.86 at 650 nm.

The chemical composition of zangboite was determined by WDS. The average (with ranges in parentheses) of 10 analyses from three different samples is Fe 34.78 (35.38–34.31), Si 34.60 (36.10–33.56), Ti 28.31 (29.35–27.67), Cr 0.59 (1.01–n.d.), Mn 0.55 (1.03–n.d.), Zr 0.51 (1.51–n.d.), and Al 0.53(1.60–n.d.). This composition leads to an empirical formula (on the basis of 2 Si pfu) of $(Ti_{0.99}Zr_{0.01})(Fe_{1.01}Cr_{0.02}Mn_{0.02})(Si_{2.00}Al_{0.03})$.

An X-ray diffraction pattern was obtained from a single crystal using a Bruker Apex CCD diffractometer and Mo$K\alpha$ radiation. The strongest six lines in the pattern are [d in Å(I_{obs}%,hkl)] 2.1291(100,232), 2.0251(65,042), 2.2318(50,312), 1.9155(57,004), 3.8358(50,002), and 2.3010(30,312). Single-crystal diffraction data were obtained using graphite monochromated Mo$K\alpha$ radiation and a Bruker apex CCD diffractometer. The structure was refined to R_1 of 3.7% using 1227 independent reflections. Zangboite is orthorhombic, with space group *Pbam*, a = 8.6053(10), b = 9.5211(11), c = 7.6436(9) Å, V = 626.25(13) Å^3, Z = 12. This data is in excellent agreement with data from the synthetic compound. The structure of zangboite consists of Fe atoms in the centre of deformed Si octahedra. Three octahedra share faces to form groups oriented along the b axis. Along the c axis the groups share edges to form chains. Titanium atoms are located in holes between the Si octahedra.

The name zangboite is for the Yarlong Zangbo River that flows in the area. The type material is held in the collection of the Geological Museum of China (Beijing), catalog number (M11651). **G.P.**