PŮVODNÍ PRÁCE/ORIGINAL PAPER

Nordstrandit a zeolitová mineralizace fonolitu Tachovského vrchu u Doks (Česká republika)

Nordstrandite and zeolite mineralization in phonolite of Tachovský Hill near Doksy (Czech Republic)

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Abstract

The rare Al-hydroxide, nordstrandite, has been recently found in the cenozoic Ti-garnet bearing hauyne phonolite body of the Tachovský Hill near Doksy (Czech Republic). It occurs in fissures of phonolite as irregular aggregates of colorless to yellowish crystals up to 1 mm in length, spherical aggregates with pearly lustre up to 1 cm accross and rarely honey yellow hemispherical aggregates with crystalline surface up to 4 mm in size in association with natrolite, calcite, aragonite and fluorite. Nordstrandite is triclinic, space group *P*-1 with following unit-cell parameters *a* 5.119(6), *b* 5.082(6), *c* 5.125(6) Å, α 70.3(7)°, β 73.9(8)°, γ 58.4(7)° and *V* 106.0(2) Å^3. Chemical analyses of nordstrandite correspond to the empirical formula $(Al_{0.99}Si_{0.01})_{\Sigma 1.00}(OH)_3$. The most abundant zeolite in studied material is analcime, it forms crystals up to 15 mm in size. Its unit-cell parameter is *a* 13.709(6) Å and *V* 2576(1) Å ^{3}. Other determined zeolites (chabasite-Ca, natrolite, phillipsite-Ca, thomsonite-Ca) are more rare. The unit-cell parameters of chabazite-Ca are *a* 13.833(8), *c* 15.0213(3) Å and *V* 2490(1) Å^3. Its chemical analyses correspond to the empirical formula $Ca_{1.13}Sr_{0.58}Na_{0.18}K_{0.10}Ba_{0.01}(Si_{7.81}Al_{4.13}Fe_{0.12})O_{24}\cdot 12\ H_2O$. The unit-cell parameters of natrolite, are *a* 18.344(3), *b* 18.558(4), *c* 6.587(1) Å and *V* 2242.4(9) Å^3. Its chemical analyses of correspond to the empirical formula $Na_{1.88}Ca_{0.01}(Si_{3.03}Al_{1.96})O_{10}\cdot 2\ H_2O$. The unit-cell parameters of phillipsite-Ca are *a* 9.926(2), *b* 14.303(4), *c* 8.742(2) Å, β 124.92(5)° and *V* 1017.7(4) Å^3. Its chemical composition is possible to express by empirical formula $Ca_{1.15}K_{1.09}Na_{0.87}Ba_{0.16}(Si_{10.86}Al_{5.06}Fe_{0.27})O_{32}\cdot 12\ H_2O$. The unit-cell parameters of thomsonite-Ca are *a* 13.1081(14), *b* 13.0558(18), *c* 13.2448(16) Å and *V* 2266.7(5) Å^3. Two types of thomsonite-Ca with various Sr content were determined with empirical formulae $Ca_{1.68}Na_{1.01}Sr_{0.19}(Si_{5.23}Al_{4.78})O_{20}\cdot 6\ H_2O$ and $Ca_{1.63}Na_{1.02}Sr_{0.36}(Si_{5.10}Al_{4.86})O_{20}\cdot 6\ H_2O$, respectively.

Key words: *nordstrandite, analcime, chabazite-Ca, natrolite, phillipsite-Ca, thomsonite-Ca, powder X-ray diffraction data, unit-cell parameters, chemical composition, phonolite Tachovský Hill, Czech Republic*

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