PŮVODNÍ PRÁCE/ORIGINAL PAPER

Nový nález gibbsitu z tefritového lomu Hammerunterwiesenthal v Krušných horách (Německo)

New found of gibbsite at the Hammerunterwiesenthal tephrite quarry, Krušné hory Mts. (Germany)

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Abstract

The new occurrence of well-crystaline Al-hydroxide, gibbsite, was found in the Hammerunterwiesenthal tephrite quarry in Erzgebirge (Germany). Gibbsite forms lustrous transparent pseudo-hexagonal tabular crystals, their twins and groups up to 3.5 mm in size. Gibbsite is monoclinic, space group $P2_1/n$ with following unit-cell parameters: *a* 8.669(2) Å, *b* 5.070(2) Å, *c* 9.720(3) Å, *β* 94.54(3)°, *V* 425.9(2) Å^3. Chemical analyses yield the average composition Al_2O_3 65.48, SiO_2 0.04, $H_2O_{calc.}$ 34.74, total 100.26 wt. % corresponding to the formula $Al(OH)_3$ on the basis of 1 atom in cation sites. Raman spectrum is in good coincident with published data for this mineral phase and is considerably different from Raman spectra of another $Al(OH)_3$ polymorphs. Gibbsite was found in the close association of natrolite. Natrolite is orthorhombic, space group *Fdd*2 with following unit-cell parameters: *a* 18.368(5) Å, *b* 18.591(7) Å, *c* 6.594(4) Å, *V* 2251(1) Å^3 and its average composition Na_2O 14.54, Al_2O_3 26.98, SiO_2 45.24, K_2O 0.04, CaO 1.46, $H_2O_{calc.}$ 9.23, total 97.48 wt. % corresponding to formula $(Na_{1.83}Ca_{0.10})_{\Sigma 1.93}(Al_{2.07}Si_{2.94})_{\Sigma 5.01}O_{10}\cdot 2H_2O$ on the basis 10 O.

Key words: *gibbsite, natrolite, zeolite, chemical composition, powder X-ray diffraction data, unit-cell parameters, raman spectra, Hammerunterwiesenthal, Erzgebirge Mts., Germany*

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