

Nové nálezy natrolitu a gonnarditu v alkalických pegmatitech - Tvedalen (Norsko) a Lugar da Nave (Portugalsko)

New finds of natrolite and gonnardite in alkaline pegmatites - Tvedalen (Norway) and Lugar da Nave (Portugal)

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Abstract

Alkaline pegmatites attached to nepheline syenite bodies often contain rare and species rich mineral associations. A typical late-hydrothermal cavities mineral assemblage represents minerals of the zeolites group. Significant new finds of the zeolite mineralization were made in 2015 and 2016 at the localities Tvedalen (Norway) and Lugar da Nave (Portugal). Natrolite dominates in both localities and at Lugar da Nave also gonnardite occurs. Natrolite forms the perfect prismatic crystals up to several centimeters in size, chemically homogeneous with Na-dominance (≥ 1.88 apfu Na) in cation position without further elements. Genetically interesting is the occurrence of gonnardite epitaxially clustered with two generations of natrolites. Gonnardite forms 1 - 2 mm thick crust on older prismatic natrolite I and it is covered of fine needle-like natrolite II. The dominant cation is Na (7.00 - 7.07 apfu), K (0.17 - 0.28 apfu) and Ca (0.12 - 0.15 apfu) are present in trace amounts. The representative composition can be expressed by the empirical formula $(\text{Na}_{7.04}\text{K}_{0.21}\text{Ca}_{0.13})_{\Sigma 7.38}[\text{Al}_{8.85}\text{Si}_{11.48}]_{\Sigma 20.33}\text{O}_{40} \cdot 12\text{H}_2\text{O}$. Gonnardite represents probably (sub)recent mineral phase formed by the dehydration of primary parnatrolite (monoclinic polymorph of natrolite) under supergene conditions. The unit cell parameters of natrolite from Tvedalen refined from powder X-ray data are: a 18.330(6) Å, b 18.582(5), c 6.584(2) Å and V 2242.6(9) Å³. The unit cell parameters of natrolite from Lugar da Nave refined from powder X-ray data are: a 18.341(5) Å, b 18.570(4), c 6.586(3) Å and V 2243.3(9) Å³. The unit cell parameters of gonnardite refined from powder X-ray data are: a 13.204(9), c 6.6292(13) Å and V 1156(1) Å³.

Key words: zeolites, natrolite, gonnardite, parnatrolite, analcime, Tvedalen, Lugar da Nave, pegmatite, syenite

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