

НОВЫЕ МИНЕРАЛЫ, КЛАССИФИКАЦИЯ И НОМЕНКЛАТУРА

УДК 549.753.1

© Д. чл. Н. В. ЧУКАНОВ,* А. А. МУХАНОВА,** Ш. МЁККЕЛЬ,***
д. чл. Д. И. БЕЛАКОВСКИЙ,**** Л. А. ЛЕВИЦКАЯ*****

НИКЕЛЬТАЛМЕССИТ, $\text{Ca}_2\text{Ni}(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$ — НОВЫЙ МИНЕРАЛ ГРУППЫ ФАЙРФИЛДИТА ИЗ БУ АЗЗЕРА (МАРОККО)¹

N. V. CHUKANOV, A. A. MUKHANOVA, Sh. MÖCKEL, D. I. BELAKOVSKIY, L. A. LEVITSKAYA.
NICKELTALMESSITE, $\text{Ca}_2\text{Ni}(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$ — A NEW FAIRFIELDITE-GROUP MINERAL
FROM BOU AZZER, MOROCCO

* Институт проблем химической физики РАН,

142432, Московская обл., г. Черноголовка, e-mail: chukanov@icp.ac.ru

** Институт экспериментальной минералогии РАН, 142432, Московская обл., г. Черноголовка

*** Альфа-Геофюзик, Нойдорферштрассе, 18, Готхельффридрихсgrund,

09629, ФРГ (Alpha-Geophysik, Neudorferstrasse, 18, Gotthelffriedrichsgrund, 09629, Germany)

**** Минералогический музей им. А. Е. Ферсмана РАН, 119071, Москва, В-71, Ленинский пр., 18-2

***** Институт геологии рудных месторождений, петрографии,

минералогии и геохимии РАН (ИГЕМ РАН), 109017, Москва, Старомонетный пер., 35

A new mineral of the fairfieldite-group, nickeltalmessite $\text{Ca}_2\text{Ni}(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$ has been found in association with annabergite, nickelaustinite, pecoraite, calcite and a mineral of the chromite-manganochromite series on a dump of the Ait Ahmane mine (Bou Azzer district, Morocco). The new mineral forms botryoidal aggregates consisting of split individuals up to $10 \times 10 \times 20$ mkm in size. Color is apple-green, streak white. Brittle, Mohs' hardness 4, cleavage perfect on {010}. $D_{\text{meas}} = 3.72(3)$ g/cm³ (volumetric method), $D_{\text{calc}} = 3.740$ g/cm³. Wavenumbers of absorption bands in the IR spectrum are (cm⁻¹): s — strong band, w — weak band, sh — shoulder): 3100sh, 2885s, 2410, 2300sh, 1760w, 1540, 977, 910sh, 865s, 844s, 803s, 530w, 434s. Weight loss on heating in vacuum from 24° to 500 °C (heating rate 4 °C min⁻¹) is 8.03 %. Under the microscope nickeltalmessite is colorless, nonpleochroic, optically biaxial positive, $\alpha = 1.715(3)$, $\beta = 1.720(5)$, $\gamma = 1.753(3)$, $2V_{\text{meas}} = 80(10)^\circ$, $2V_{\text{calc}} = 60.4^\circ$. Dispersion is not observed. Chemical composition (electron microprobe, mean of 5 local analyses, wt %): CaO 25.92, MgO 1.23, CoO 1.08, NiO 13.01, As₂O₅ 52.09; H₂O (determined by the Penfield method) 7.8, total 101.13. The empirical formula, based on (AsO₄)₂ is: Ca_{2.04}(Ni_{0.77}Mg_{0.13}Co_{0.06})_{Σ0.96}(AsO₄)_{2.00} · 1.91H₂O. The idealized formula is Ca₂Ni(AsO₄)₂ · 2H₂O. The strongest reflections of the powder diffraction pattern [*d*, Å (*I*, %) (*hkl*)] are: 5.05 (27) (001) (100), 3.57 (43) (011), 3.358 (58) (110), 3.202 (100) (020), 3.099 (64) (021), 2.813 (60, (121), 2.772 (68) (210), 1.714 (39) (331). Unit-cell parameters refined from powder data are: 5.858(7), *b* = 7.082(12), *c* = 5.567(6) Å, $\alpha = 97.20(4)$, $\beta = 109.11(5)$, $\gamma = 109.78(5)^\circ$, *V* = 198.04 Å³, *Z* = 1. Supposed space groups is *P1* or *P1*. The mineral was named for its chemical composition, being the Ni-dominant analogue of talmessite. The holotype specimen of nickeltalmessite is deposited in the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow, Russia, registration number 3750/1.