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КАМАРИЦАИТ $\text{Fe}_3^{3+}(\text{AsO}_4)_2(\text{OH})_3 \cdot 3\text{H}_2\text{O}$ — НОВЫЙ МИНЕРАЛ, АРСЕНАТНЫЙ АНАЛОГ ТИНТИКИТА¹

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L. A. LEVITSKAYA, G. K. BEKENOVA. KAMARIZAITE $\text{Fe}_3^{3+}(\text{AsO}_4)_2(\text{OH})_3 \cdot 3\text{H}_2\text{O}$ — A NEW MINERAL,
ARSENATE ANALOGUE OF TINTICITE*

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A new mineral kamarizaite has been found in association with scorodite, jarosite and goethite on a waste dump of Kamariza mine, Lavrion mining district, Attiki Prefecture, Greece. The mineral forms fine-grained aggregates (up to 3 cm) consisting of individuals up to 1 μm in size, as well as submicroscopic botryoidal aggregates. Color yellow to beige, streak light yellow. Mohs' hardness 3. Cleavage is not observed. $D_{\text{me-as}} = 3.16(1) \text{ g/cm}^3$ (by hydrostatic weighing), $D_{\text{calc}} = 3.12 \text{ g/cm}^3$. Wavenumbers of absorption bands in the IR

spectrum of kamarizaite are (cm^{-1} ; s — strong band, w — weak band): 3552, 3315s, 3115, 1650w, 1620w, 1089, 911s, 888s, 870, 835s, 808s, 614w, 540, 500, 478, 429. By TG and IR data, complete dehydration and dehydroxylation in vacuum (with the weight loss of 15.3(1) %) occurs in the temperature range 110—420 °C. By Mössbauer data, all iron in kamarizaite is Fe^{3+} with octahedral coordination. Kamarizaite is optically biaxial, positive. $n_{\min} = 1.825$, $n_{\max} = 1.835$, $n_{\text{mean}} = 1.83(1)$ (for a fine-grained aggregate). Chemical composition is (electron microprobe, mean of 4 point analyses, wt %): CaO 0.35, Fe_2O_3 41.78, As_2O_5 39.89, SO_3 1.49, H_2O (by TGA data) 15.3, total 98.81 %. The empirical formula, based on $(\text{AsO}_4, \text{SO}_4)_2$ is: $\text{Ca}_{0.03}\text{Fe}_{2.86}^{3+}(\text{AsO}_4)_{1.90}(\text{SO}_4)_{0.10}(\text{OH})_{2.74} \cdot 3.27\text{H}_2\text{O}$. The idealized formula is $\text{Fe}_3^{3+}(\text{AsO}_4)_2(\text{OH})_3 \cdot 3\text{H}_2\text{O}$. Kamarizaite is orthorhombic, space group *Pccm*, *Pcc2*, *Pcmm*, *Pcm2₁* or *Pc2m*; $a = 21.32(1)$, $b = 13.666(6)$, $c = 15.80(1)$ Å, $V = 4603.29(5)$ Å³, $Z = 16$. The strongest reflections of the powder diffraction pattern [d , Å (I , %) (hkl)] are: 6.61 (37) (112, 120), 5.85 (52) (311), 3.947 (100) (004, 032, 511), 3.396 (37) (133, 431), 3.332 (60) (314), 3.085 (58) (621, 414, 324). The holotype specimen is deposited in the Mineralogical Collection of the Technische Universität Bergakademie Freiberg, Germany (inventory number 82199).