

НОВЫЕ МИНЕРАЛЫ

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НОВЫЙ МИНЕРАЛ ОКСИВАНИТ V_3O_5 И ИЗОМОРФНЫЙ РЯД ОКСИВАНИТ—БЕРДЕСИНСКИИТ V_2TiO_5 В МЕТАМОРФИЧЕСКИХ ПОРОДАХ СЛЮДЯНСКОГО КОМПЛЕКСА (ЮЖНОЕ ПРИБАЙКАЛЬЕ)¹

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E. V. GALUSKIN, Yu. S. POLEKHOVSKY, I. G. BARASH. THE NEW MINERAL OXYVANITE V_3O_5
AND THE OXYVANITE—BERDESINSKIITE V_2TiO_5 ISOMORPHIC JOIN
IN METAMORPHIC ROCKS OF SLUDYANKA COMPLEX (SOUTH BAIKAL REGION)

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Oxyvanite has been found as an accessory mineral in Cr-V-bearing quartz-diopside metamorphic rocks of Sludyanka complex in South Baikal region, Russia. It is named oxyvanite due to composition — with oxygen and vanadium represented in its ideal formula. The mineral associates with quartz, Cr-V-bearing tremolite and mica, calcite, diopside-kosmochlor-natalyite, Cr-goldmanite, eskolaite-karelianite, dravite-vanadiumdravite, V-bearing titanite, ilmenite, rutile, berdesinskiite, plagioclase, schreyerite, scapolite, barite, zircon, pyrite and unnamed oxides of V, Cr, Ti, U, Nb. Oxyvanite forms anhedral grains, up to 0.1—0.15 mm in size, without visible cleavage or parting. Brittle, with conchoidal fracture. Color and streak black, luster resinous. VHN (load 30 g) 1064—1266, mean 1180 kg/mm²; Mohs' hardness near 7—7.5, d_{calc} 4.66(2). The mineral has not anisotropy; it is pale cream in reflected light; reflectance values (λ , nm — R , %): 440—17.8, 460—18, 480—18.2, 500—18.4, 520—18.6, 540—18.8, 560—18.9, 580—19, 600—19.1, 620—19.2, 640—19.3, 660—19.4, 680—19.5, 700—19.7. Monoclinic, sp. gr. $C2/c$, unit cell parameters: $a = 10.032(2)$ Å, $b = 5.050(1)$ Å, $c = 7.000(1)$ Å, $\beta = 111.14(1)^\circ$, $V = 330.76(5)$ Å³; $Z = 4$. Strongest lines of powder diffraction pattern [d , Å (I — in 5-point scale) (hkl): 3.28 (5) (202); 2.88 (5) (112); 2.65, (5) (310); 2.44 (5) (112); 1.717 (5) (422); 1.633 (5) (314); 1.446 (4) (332); 1.379 (5) (422). Chemical composition (mean of 6 microprobe analyses, wt %): TiO₂ 14.04, V₂O₃ 73.13 (V₂O₃_{calc} 53.97, VO₂_{calc} 21.25), Cr₂O₃ 10.76, Fe₂O₃ 0.04, Al₂O₃ 0.01, MgO 0.02, total sum 100.03. Empirical formula is (V_{1.70}Cr_{0.30})_{2.0}(V_{0.59}Ti_{0.41})_{1.0}O₅. Oxyvanite is a part of the binary oxyvanite-berdesinskiite join with isostructural isomorphism V^{4+} —Ti. The type material is deposited at the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow.