

**Dukeite,  $\text{Bi}^{3+}_{24}\text{Cr}^{6+}_8\text{O}_{57}(\text{OH})_6(\text{H}_2\text{O})_3$ , a New Mineral from Lavra da Posse, São José de Brejaúba, Minas Gerais, Brazil: An Example for the Importance of Mineral Collections**

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Dukeite, space group  $P31c$ ,  $a=15.067(3)\text{\AA}$ ,  $c=15.293(4)\text{\AA}$ ,  $V=3006(2)\text{\AA}^3$ ,  $Z=2$ , is a new mineral found on a museum specimen labelled as originating from the São Jose Mine, Brejaúba, Minas Gerais, Brazil. The strongest 7 lines of the X-ray powder diffraction pattern [ $d$  in  $\text{\AA}$  ( $hkl$ )] are: 7.650 (50) (002), 3.812 (40) (004), 3.382 (100) (222), 2.681 (70) (224), 2.175 (40) (600), 2.106 (40) (226), 1.701 (50) (228). It occurs as groupings of tightly bound 1 x 0.3 mm-sized sheaves that are associated with pucherite, schumacherite, bismutite and hechtsbergite. Individual acicular crystals, elongated along [001], do not exceed 100 x 1-2 Fm. They are yellow to a dirty yellow-brown, with a bright yellow streak, are transparent, brittle, resinous, and do not fluoresce under ultraviolet light. In reflected plane-polarized light in air it is gray to purplish gray with strong yellow internal reflections with very weak bireflectance. The estimated Mohs hardness is between 3 and 4, the calculated density (from the empirical formula) is  $7.171\text{ g/cm}^3$ , and it is slowly soluble in concentrated HCl. The empirical formula, derived from the crystal-structure and microprobe analysis, is  $\text{Bi}^{3+}_{23.95}(\text{Cr}^{6+}_{7.64}\text{V}^{5+}_{0.43})^{8.07}\text{O}_{56.84}(\text{OH})_{6.16} @ 3.01\text{ H}_2\text{O}$ , based on O = 66. The name honours Duke University in whose collection the mineral was found and also recognizes the contribution of the Duke family to the advancement of science.