

Crystal Data: Hexagonal. *Point Group:* $3m$. As very tightly bound sheaves, to 1 mm composed of parallel acicular crystals to 100 μm .

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3-4
D(meas.) = n.d. D(calc.) = 7.179

Optical Properties: Transparent to translucent (bundles). *Color:* Yellow to dirty yellow-brown; gray to purplish gray with strong yellow internal reflections in reflected light.

Streak: Bright yellow. *Luster:* Resinous.

Optical Class: Uniaxial. $n(\text{calc.}) = 2.33$ and 2.37 *Birefractance:* Very weak.

R_1 - R_2 : (470) 17.9-18.6 (6.11-6.65)_{oil}, (546) 16.45-17.0 (5.43-5.94)_{oil}, (589) 16.0-16.5 (5.19-5.67)_{oil}, (650) 15.7-16.2 (5.00-5.57)_{oil}

Cell Data: *Space Group:* $P31c$. $a = 15.067(3)$ $c = 15.293(4)$ $Z = 2$

X-ray Powder Pattern: Lavra da Posse, São José de Brejaúba, Minas Gerais, Brazil.
3.382 (100), 2.681 (70), 7.650 (50), 1.701 (50), 3.812 (40), 2.175 (40), 2.106 (40)

Chemistry:	(1)	(2)
Bi_2O_3	85.06	86.03
CrO_3	11.65	12.31
V_2O_5	0.59	
H_2O	[1.67]	1.67
Total	98.97	100.00

(1) Lavra da Posse, São José de Brejaúba, Minas Gerais, Brazil; average electron microprobe analysis, H_2O calculated; corresponds to $\text{Bi}^{3+}_{23.95}(\text{Cr}^{6+}_{7.64}\text{V}^{5+}_{0.43})_{\Sigma=8.07}\text{O}_{56.84}(\text{OH})_{6.16} \cdot 3.01\text{H}_2\text{O}$.

(2) $\text{Bi}^{3+}_{24}\text{Cr}^{6+}_8\text{O}_{57}(\text{OH})_6(\text{H}_2\text{O})_3$.

Occurrence: On a museum specimen of pucherite.

Association: Pucherite, schumacherite, bismutite, hechtsbergite.

Distribution: At Lavra da Posse, São José de Brejaúba, Conceição do Mato Dentro County (specimen label indicates the São José Mine, Brejaúba), Minas Gerais, Brazil.

Name: For *Duke* University, Durham, North Carolina, USA, in whose collection the mineral was found and for the contributions of Duke family to the advancement of scientific knowledge.

Type Material: National Museum of Natural History, Washington D.C., USA (172012) and the Systematic Reference Series, National Mineral Collection of Canada, Geological Survey of Canada, Ottawa, Ontario (NMCC 68082).

References: (1) Burns, P.C., A.C. Roberts, J.A.R. Stirling, A.J. Criddle, and M.N. Feinglos (2000) 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 Brejaúba, Minas Gerais, Brazil: Description and crystal structure. *Amer. Mineral.*, 85, 1822-1827.