Bracewellite  $Cr^{3+}O(OH)$ 

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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m \ 2/m \ 2/m$ . Very rarely as minute crystals; in crystalline masses; in alluvial grains.

Physical Properties: Hardness = n.d. D(meas.) = 4.45-4.48 D(calc.) = [4.28]

**Optical Properties:** Semitransparent. *Color:* Deep red to black. *Streak:* Dark brown. *Optical Class:* Biaxial.  $\alpha = \text{n.d.}$   $\beta = \text{n.d.}$   $\gamma = \text{n.d.}$  2V(meas.) = n.d.

**Cell Data:** Space Group: Pbnm. a = 4.492(3) b = 9.860(5) c = 2.974(2) Z = 4

X-ray Powder Pattern: Merume River, Guyana.

4.065 (vvs), 2.648 (vs), 2.404 (vs), 2.458 (w), 2.149 (w), 3.314 (vw), 2.546 (vw)

Chemistry:

$$\begin{array}{cccc} & & (1) & & (2) \\ \text{Ti}_2\text{O}_3 & & 0.17 & & \\ \text{Al}_2\text{O}_3 & & 6.2 & & \\ \text{Fe}_2\text{O}_3 & & 15.1 & & \\ \text{Cr}_2\text{O}_3 & & 70.6 & & 89.40 \\ \text{V}_2\text{O}_3 & & 0.64 & & \\ \text{H}_2\text{O} & & 6.9 & & 10.60 \\ \hline \text{Total} & & 99.6 & & 100.00 \\ \end{array}$$

(1) Merume River, Guyana; estimated to contain 30% eskolaite. (2) CrO(OH).

Polymorphism & Series: Trimorphous with grimaldiite and guyanaite.

Occurrence: In fine-grained intergrowth with other chromium oxide-hydroxide minerals.

**Association:** Eskolaite, grimaldiite, guyanaite, mcconnellite.

**Distribution:** In the basin of the Merume River, Guyana.

Name: For Smith Bracewell, formerly Director, British Guyana Geological Survey, who first noted the occurrence.

Type Material: The Natural History Museum, London, England, 1979,136.

References: (1) Milton, C., D.E. Appleman, M.H. Appleman, E.C.T. Chao, F. Cuttitta, J.I. Dinnin, E.J. Dwornik, B.L. Ingram, and H.J. Rose, Jr. (1976) Merumite, a complex assemblage of chromium minerals from Guyana. U.S. Geol. Surv. Prof. Paper 887, 1–29. (2) (1977) Amer. Mineral., 62, 593 (abs. ref. 1).