Mcconnellite $Cu^{1+}Cr^{3+}O_2$

Crystal Data: Hexagonal. *Point Group:* $3m$. As parallel intergrowths with grimaldiite in tabular rhombohedral crystals, to 1 mm; as granular aggregates of intergrown crystals.

Physical Properties: *Cleavage:* {0001}. Hardness = n.d. D(meas.) = 5.49 (synthetic). D(calc.) = 5.61

Optical Properties: Translucent in intergrowths with grimaldiite. *Color:* Deep red. *Optical Class:* Uniaxial. ω = n.d. ϵ = n.d.

Cell Data: *Space Group:* $R3m$. $a = 2.983(4)$ $c = 17.160(31)$ Z = 1

X-ray Powder Pattern: Merume River, Guyana; from a mixture with grimaldiite. 2.85 (ms), 2.462 (ms), 2.21 (vw), 1.420 (vw), 1.64 (vvw)

Chemistry:

	(1)	(2)
SiO_2	0.42	
Al_2O_3	4.3	
Fe_2O_3	0.85	
Cr_2O_3	77.3	51.51
CuO	5.5	
Cu_2O		48.49
LOI	11.5	
Total	99.9	100.00

(1) Merume River, Guyana; integrowth of 80%–86% grimaldiite, the balance mcconnellite and H_2O. (2) $CuCrO_2$.

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

Association: Bracewellite, eskolaite, grimaldiite, guyanaite.

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

Name: For Dr. Richard Bradford McConnell, formerly Director, British Guyana Geological Survey.

Type Material: n.d.

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). (3) Dannhauser, W. and P.A. Vaughan (1955) The crystal structure of cuprous chromite. J. Amer. Chem. Soc., 77, 896–897.