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

Crystal Data: Orthorhombic. *Point Group:* $2/m2/m2/m$. Very rarely as prismatic crystals, to 0.1 mm; in microcrystalline aggregates; commonly in alluvial grains.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.53–4.81

Optical Properties: Semitransparent. *Color:* Reddish brown, golden brown, greenish brown, green, probably variable with particle size and degree of oxidation; gray with greenish tint in reflected light, with strong red to yellowish brown internal reflections. *Streak:* Yellow-brown, greenish brown.
Optical Class: Biaxial. *Pleochroism:* In browns. α = n.d. β = n.d. γ = n.d.
2V(meas.) = n.d.

Cell Data: *Space Group: Pnnm.* a = 4.857–4.862 b = 4.295–4.314 c = 2.951–2.958
Z = 2

X-ray Powder Pattern: Merume River, Guyana.
3.224 (vvs), 2.432 (vs), 1.636 (s), 1.719 (ms), 1.609 (ms), 1.516 (ms), 2.524 (m)

Chemistry:

	(1)	(2)	(3)
Ti_2O_3	0.86		
Al_2O_3	4.0	1.03	
Fe_2O_3	4.4	1.47	
Mn_2O_3	0.98		
V_2O_3		6.78	
Cr_2O_3	71.7	75.76	89.40
H_2O^+	[14.3]	[14.96]	10.60
Total	[96.3]	[100.00]	100.00

(1) Merume River, Guyana; H_2O calculated from stoichiometry, original total given as 96.2%; H_2O 8.7% determined by the Penfield method on a separate sample, probably low due to oxidation of Cr with loss of H^{1+}. (2) Outokumpu, Finland; by electron microprobe, average of seven analyses; H_2O by difference. (3) CrO(OH).

Polymorphism & Series: Trimorphous with bracewellite and grimaldiite.

Occurrence: In fine-grained intergrowth with other chromium oxide-hydroxide minerals (Merume River, Guyana); in chromium-rich tremolite skarns, metaquartzites, and chlorite veins (Outokumpu, Finland).

Association: Bracewellite, eskolaite, grimaldiite, mcconnellite (Merume River, Guyana).

Distribution: Along the Merume River and its tributaries, Mazaruni district, Guyana. From Outokumpu, Finland.

Name: For its occurrence in Guyana.

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). (3) Vuorelainen, Y., T.A. Häkli, and M. Kataja (1968) A hydrated oxide of chromium as a pseudomorph after eskolaite, Outokumpu, Finland. Bull. Geol. Soc. Finland, 40, 125–129.