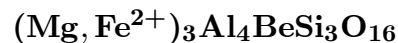


Surinamite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. As small crystals, platy $\parallel \{010\}$, to 0.2 mm.

Physical Properties: *Cleavage:* One well-developed $\perp \{010\}$. *Hardness* = n.d.
D(meas.) = > 3.3 D(calc.) = 3.58

Optical Properties: Transparent. *Color:* Dark blue, blue-green.
Optical Class: Biaxial (-). *Pleochroism:* Y = violet; \parallel to cleavage = bright blue-green; \perp to cleavage = very light greenish brown to colorless. *Orientation:* $Y = b$. *Dispersion:* Very strong.
 $\alpha = 1.738$ $\beta = 1.743$ $\gamma = 1.746$ $2V(\text{meas.}) = 67^\circ\text{--}68^\circ$

Cell Data: *Space Group:* $P2/n$. $a = 9.916(1)$ $b = 11.384(1)$ $c = 9.631(1)$
 $\beta = 109.30(1)^\circ$ $Z = 4$

X-ray Powder Pattern: Bakhuis Mountains, Surinam; closely resembles sapphirine.
2.435 (100), 1.99 (100), 1.420 (80), 7.05 (60), 2.91 (60), 1.432 (60), 1.411 (60)

Chemistry:

	(1)	(2)
SiO ₂	33.1	32.3
TiO ₂	0.05	
Al ₂ O ₃	34.9	34.3
FeO	12.25	10.8
MnO	1.05	0.7
ZnO	0.05	
BeO	n.d.	[4.5]
MgO	16.45	17.3
CaO	0.05	0.0
F	0.05	
Total	[97.95]	[99.9]

(1) Bakhuis Mountains, Surinam; by electron microprobe, original total given as 97.85%; BeO ~4% inferred from later analyses. (2) Chimwala area, Zambia; BeO assumed, then corresponding to $(\text{Mg}_{2.39}\text{Fe}_{0.55}\text{Mn}_{0.06})_{\Sigma=3.00}(\text{Al}_{3.74}\text{Fe}_{0.28})_{\Sigma=4.02}\text{Be}_{1.00}\text{Si}_{2.99}\text{O}_{16}$.

Occurrence: In mylonitic mesoperthite gneiss, probably formed during high-pressure granulite facies metamorphism of aluminous rocks (Bakhuis Mountains, Surinam); in sillimanite-rich segregations in pegmatites (Casey Bay, Antarctica); as pseudomorphs after cordierite (Chimwala area, Zambia).

Association: Biotite, kyanite, sillimanite, spinel (Bakhuis Mountains, Surinam); quartz, sillimanite, sapphirine, taaffeite (Casey Bay, Antarctica); cordierite (Chimwala area, Zambia).

Distribution: From the Bakhuis Mountains, Surinam. In the Woolanga Bore area, Strangways Range, Northern Territory, Australia. From Casey Bay, Enderby Land, Antarctica. In the Chimwala area, Eastern Province, Zambia.

Name: For Surinam, the country of first occurrence.

Type Material: Geological & Mining Service, Paramaribo, Surinam, EW 1115.

References: (1) de Roever, E.W.F., C. Kieft, E. Murray, E. Klein, and W.H. Drucker (1976) Surinamite, a new Mg-Al silicate from the Bakhuis Mountains, western Surinam. I. Description, occurrence, and conditions of formation. *Amer. Mineral.*, 61, 193–199. (2) de Roever, E.W.F., D. Lattard, and W. Schreyer (1981) Surinamite: a beryllium-bearing mineral. *Contr. Mineral. Petrol.*, 76, 472–473. (3) Moore, P.B. and T. Araki (1983) Surinamite, *ca.* $\text{Mg}_3\text{Al}_4\text{Si}_3\text{BeO}_{16}$: its crystal structure and relation to sapphirine, *ca.* $\text{Mg}_{2.8}\text{Al}_{7.2}\text{Si}_{1.2}\text{O}_{16}$. *Amer. Mineral.*, 68, 804–810. (4) de Roever, E.W.F. and S. Vrána (1985) Surinamite in pseudomorphs after cordierite in polymetamorphic granulites from Zambia. *Amer. Mineral.*, 70, 710–713.

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