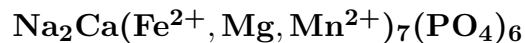


Johnsomervilleite



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Crystal Data: Hexagonal; may be metamict. *Point Group:* $\bar{3}$ (probable). As grains or blebs, to 2 cm; in dendritic or coralloidal groups.

Physical Properties: *Cleavage:* Perfect, on {0001}, probable. *Fracture:* Subconchoidal to splintery. *Tenacity:* Brittle. Hardness = 4.5 D(meas.) = 3.35 D(calc.) = 3.41

Optical Properties: Translucent. *Color:* Very dark brown to blackish gray, pitch-black; brown in transmitted light. *Streak:* Pale brown; gray-brown with an olive tint. *Luster:* Vitreous. *Optical Class:* Biaxial (+), anomalous; isotropic if metamict. $n = 1.646(1)$ (metamict). $\alpha = 1.655$ $\beta = \sim 1.655$ $\gamma = \text{n.d.}$ $2V(\text{meas.}) = 10^\circ$

Cell Data: *Space Group:* $[R\bar{3}]$ (by analogy to fillowite). $a = 15.00$ $c = 42.75$ $Z = 18$

X-ray Powder Pattern: Loch Quoich, Scotland.

2.764 (100), 3.70 (70), 3.55 (70), 2.965 (70), 11.20 (50), 2.501 (40), 1.852 (20)

Chemistry:

	(1)
P ₂ O ₅	44.7
FeO	26.2
MnO	5.2
MgO	12.9
CaO	6.2
Na ₂ O	4.7
Total	99.9

(1) Loch Quoich, Scotland; by electron microprobe, average of eight analyses, total Fe as FeO, total Mn as MnO; corresponding to $\text{Na}_{1.43}\text{Ca}_{1.05}(\text{Fe}_{3.47}\text{Mg}_{3.05}\text{Mn}_{0.70})_{\Sigma=7.22}(\text{PO}_4)_6$.

Occurrence: As one of several primary accessory minerals forming clusters in podiform metamorphic segregations in kyanite-sillimanite-grade gneiss (Loch Quoich, Scotland); a primary mineral in a complex granite pegmatite in staurolite-grade mica schist (Sapucaia mine, Brazil); in type IIIAB iron meteorites.

Association: Graftonite, apatite, jahnsite, phosphosiderite, vivianite, rockbridgeite, mitridatite, almandine-spessartine, muscovite, plagioclase, quartz (Loch Quoich, Scotland); triphylite, frondelite, huréaulite, bermanite, jahnsite, rockbridgeite, phosphosiderite, vivianite, autunite, zircon, tourmaline, microcline, albite, quartz (Sapucaia mine, Brazil).

Distribution: From near the entrance to Glen Cosaidh, Loch Quoich, Inverness-shire, Scotland. In the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, Minas Gerais, Brazil. At the Kiluli pegmatite, Rwanda.

Name: Honors John M. Somerville (1908–1978), who collected the first specimens.

Type Material: Royal Scottish Museum, Edinburgh, Scotland; The Natural History Museum, London, England, 1981,70.

References: (1) Livingstone, A. (1980) Johnsomervilleite, a new transition-metal phosphate mineral from the Loch Quoich area, Scotland. *Mineral. Mag.*, 43, 833–836. (2) (1981) *Amer. Mineral.*, 66, 437 (abs. ref. 1). (3) Cassedanne, J.P. and J.O. Cassedanne (1985) Découverte d'un phosphate métamicté dans la pegmatite du Sapucaia (Minas Gerais). *Anais da Academia brasileira de Ciências*, 57(3), 325–337 (in French with English abs.).