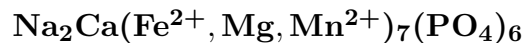


# Johnsomervilleite



©2001-2005 Mineral Data Publishing, version 1

**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)

<b>Chemistry:</b>	(1)
	P <sub>2</sub> O <sub>5</sub> 44.7
	FeO 26.2
	MnO 5.2
	MgO 12.9
	CaO 6.2
	Na <sub>2</sub> O 4.7
	<hr/>
	Total 99.9

(1) Loch Quoich, Scotland; by electron microprobe, average of eight analyses, total Fe as FeO, total Mn as MnO; corresponding to Na<sub>1.43</sub>Ca<sub>1.05</sub>(Fe<sub>3.47</sub>Mg<sub>3.05</sub>Mn<sub>0.70</sub>)<sub>Σ=7.22</sub>(PO<sub>4</sub>)<sub>6</sub>.

**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.).