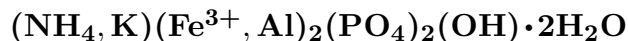


Spheniscidite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Rimming soil particles and in fine grained aggregates, in the 75–2000 μm size range.

Physical Properties: Hardness = Very soft. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = [3.08]$
Magnetic.

Optical Properties: Translucent. *Color:* Colorless, brownish. *Luster:* Dull, earthy.
Optical Class: Biaxial; moderate birefringence. $n = \sim 1.7$

Cell Data: *Space Group:* $[P2_1/n]$ (by analogy to leucophosphate). $a = 9.75(1)$ $b = 9.63(2)$
 $c = 9.70(1)$ $\beta = 102^\circ 34(7)'$ $Z = 4$

X-ray Powder Pattern: Elephant Island.

6.79 (100), 5.99 (90), 3.053 (45), 7.62 (40), 4.75 (35), 4.26 (35), 3.358 (35)

Chemistry:

	(1)
P_2O_5	32.42
Al_2O_3	9.33
Fe_2O_3	30.10
MgO	0.30
CaO	0.50
K_2O	4.45
$(\text{NH}_4)_2\text{O}$	3.27
H_2O^+	13.79
H_2O^-	5.84
Total	[100.00]

(1) Elephant Island; by X-ray fluorescence, presence of NH_4 confirmed by IR, recalculated after deduction of SiO_2 9.93%, TiO_2 0.91%, with $(\text{OH})^{1-}$ calculated for charge balance; then corresponding to $[(\text{NH}_4)_{0.55}\text{K}_{0.41}\text{Ca}_{0.04}\text{Mg}_{0.03}]_{\Sigma=1.03}(\text{Fe}^{3+}_{1.65}\text{Al}_{0.80})_{\Sigma=2.45}(\text{PO}_4)_{2.00}(\text{OH})_{2.45} \cdot 2.12\text{H}_2\text{O}$.

Occurrence: Formed by interaction of phosphate solutions derived from guano with micaceous and chloritic minerals in soil under a penguin rookery.

Association: Micaceous, chlorites.

Distribution: On Elephant Island, South Shetland Islands, about 800 km southeast of Cape Horn, British Antarctic Territory, Antarctica.

Name: For *Sphenisciformes*, the Latin order name for penguins.

Type Material: Macaulay Institute for Soil Research, Aberdeen, Scotland; The Natural History Museum, London, England.

References: (1) Wilson, M.J. and D.C. Bain (1986) Spheniscidite, a new phosphate mineral from Elephant Island, British Antarctic Territory. *Mineral. Mag.*, 50, 291–293. (2) (1987) *Amer. Mineral.*, 72, 1027 (abs. ref. 1).