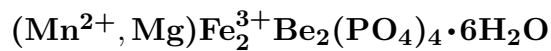


## Faheyite



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**Crystal Data:** Hexagonal. *Point Group:* 622 (probable). As needlelike crystals, showing  $\{10\bar{1}0\}$ ,  $\{11\bar{2}0\}$ ,  $\{0001\}$ , and several  $\{h0\bar{l}l\}$  forms; more generally fibrous, to 1 mm, elongated along  $[0001]$ , in flat rosettes and botryoidal masses; in mats.

**Physical Properties:** *Cleavage:* One,  $\parallel [0001]$ , perfect. Hardness = n.d.  $D(\text{meas.}) = 2.660$   
 $D(\text{calc.}) = 2.670$

**Optical Properties:** Semitransparent. *Color:* White, bluish white to brownish white.  
*Optical Class:* Uniaxial (+).  $\omega = 1.631$   $\epsilon = 1.652$

**Cell Data:** *Space Group:*  $P6_222$ ,  $P6_422$ ,  $6mm$ , 622,  $\bar{6}m2$ , or  $6/mmm$ .  $a = 9.42(2)$   
 $c = 15.98(3)$   $Z = 3$

**X-ray Powder Pattern:** Sapucaia mine, Brazil.  
5.72 (10), 7.28 (9), 3.244 (6), 3.085 (6), 3.029 (6), 3.962 (5), 2.724 (3)

### Chemistry:

	(1)
P <sub>2</sub> O <sub>5</sub>	42.08
Al <sub>2</sub> O <sub>3</sub>	0.11
Fe <sub>2</sub> O <sub>3</sub>	23.65
Mn <sub>2</sub> O <sub>3</sub>	0.00
FeO	0.00
MnO	6.61
BeO	8.02
MgO	1.26
Na <sub>2</sub> O	0.93
K <sub>2</sub> O	trace
F	trace
H <sub>2</sub> O	16.45
Total	[99.11]

(1) Sapucaia mine, Brazil; Na and K by flame photometry, recalculated after deduction of insoluble quartz and muscovite 9.44%; then corresponding to  $(\text{Mn}_{0.61}\text{Mg}_{0.21}\text{Na}_{0.20})_{\Sigma=1.02}(\text{Fe}_{1.95}\text{Al}_{0.01})_{\Sigma=1.96}\text{Be}_{2.11}(\text{PO}_4)_{3.90} \cdot 6.01\text{H}_2\text{O}$ .

**Occurrence:** A rare late-stage secondary mineral in a complex granite pegmatite (Sapucaia mine, Brazil).

**Association:** Quartz, muscovite, variscite, frondelite (Sapucaia mine, Brazil); strengite (Roosevelt mine, South Dakota, USA).

**Distribution:** From the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, Minas Gerais, Brazil. In the USA, at the Roosevelt mine, near Custer, Custer Co., South Dakota. From the Noumas mine, Blesberg, Cape Province, South Africa.

**Name:** Honoring Joseph John Fahey (1901–1980), American analytical chemist, U.S. Geological Survey, Washington, D.C., USA.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 112653.

**References:** (1) Lindberg, M.L. and K.J. Murata (1953) Faheyite, a new phosphate mineral from the Sapucaia pegmatite mine, Minas Gerais, Brazil. *Amer. Mineral.*, 38, 263–270.  
(2) Lindberg, M.L. (1964) Crystallography of faheyite, Sapucaia pegmatite mine, Minas Gerais, Brazil. *Amer. Mineral.*, 49, 395–398.