Foitite $\mathbf{Na_x[Fe^{2+}_2(Al,Fe^{3+})]Al_6(BO_3)_3Si_6O_{18}(OH)_4}$

Crystal Data: Hexagonal. *Point Group:* $3m$. Crystals prismatic, elongated and striated ‖ [0001], with triangular cross section, to 5.5 cm

Physical Properties: *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = ∼7
D(meas.) = 3.17 D(calc.) = 3.14

Optical Properties: Translucent in thin fragments. *Color:* Bluish black. *Streak:* Grayish white. *Luster:* Vitreous.
Optical Class: Uniaxial (–). *Pleochroism:* Strong; O = pale lavender; E = dark blue.
$\omega = 1.664(1)$ $\epsilon = 1.642(1)$

Cell Data: *Space Group:* $R3m$. $a = 15.967(2)$ $c = 7.126(1)$ $Z = 3$

X-ray Powder Pattern: "Southern California," USA.
2.573 (100), 3.452 (91), 6.338 (84), 2.944 (71), 4.212 (48), 3.989 (38), 2.038 (29)

Chemistry:

	(1)
SiO_2	35.90
B_2O_3	[10.37]
Al_2O_3	34.90
FeO	11.45
MnO	1.71
MgO	0.21
CaO	0.03
Li_2O	[0.31]
Na_2O	0.75
H_2O	[3.56]
Total	[99.19]

(1) "Southern California," USA; by electron microprobe, average of 10 analyses; Ti, Cu, K, F not detected, B_2O_3, Li_2O, and H_2O from stoichiometry to fill their respective sites; corresponds to $Na_{0.25}(Fe_{1.60}Al_{0.89}Mn_{0.24}Li_{0.22}Mg_{0.05})_{\Sigma=3.00}Al_{6.00}(BO_3)_3Si_{6.01}O_{18}(OH)_4$.

Mineral Group: Tourmaline group.

Occurrence: Probably in granite pegmatites.

Association: The original specimens are loose crystals without matrix.

Distribution: Found as museum specimens designated only as from "southern California," USA. [White Queen mine, Pala district, San Diego Co., California, USA.] At the Kazionnitsa mine, Alabashka, Ural Mountains, Russia.

Name: To honor Franklin F. Foit, Jr. (1942–), of Washington State University, Pullman, Washington, USA, for his work on tourmaline group minerals.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 81512.

References: (1) MacDonald, D.J., F.C. Hawthorne, and J.D. Grice (1993) Foitite, $\square[Fe^{2+}_2(Al,Fe^{3+})]Al_6Si_6O_{18}(BO_3)_3(OH)_4$, a new alkali-deficient tourmaline: description and crystal structure. Amer. Mineral., 78, 1299–1303.