Bøggildite $Sr_2Na_2Al_2(PO_4)F_9$

Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. As columnar crystal aggregates, individual crystals prismatic with nearly square outline, to 12 mm; crystals are striated lengthwise. *Twinning:* Polysynthetic, twin plane {001}, common.

Physical Properties: *Cleavage:* Prismatic, possible. *Fracture:* Even. Hardness = 4–5
D(meas.) = 3.66 D(calc.) = 3.692

Optical Properties: Semitransparent. *Color:* Flesh-red; in transmitted light, colorless to slightly reddish in thicker grains. *Luster:* Vitreous, greasy on fracture surfaces.
Optical Class: Biaxial (+) or biaxial (–). *Orientation:* $Z = b$; $X \wedge a = 36°$. *Dispersion:* Weak.
$\alpha = 1.462(2)$ $\beta = 1.466(2)$ $\gamma = 1.469(2)$ 2V(meas.) = 78°–80°

Cell Data: *Space Group:* $P2_1/c$. $a = 5.251(3)$ $b = 10.464(5)$ $c = 18.577(9)$
$\beta = 107.53(3)°$ Z = 4

X-ray Powder Pattern: Ivigtut, Greenland.
3.162 (100), 3.893 (80), 3.96 (65), 3.127 (65), 2.627 (65), 2.878 (50), 2.865 (50)

Chemistry:

	(1)		(1)
PO_4	17.63	Mg	0.18
Al	10.04	Ca	0.20
Fe	0.06	Na	8.60
Mn	trace	K	0.15
Sr	31.89	Li	trace
Ba	0.35	F	31.70
		Total	100.80

(1) Ivigtut, Greenland; corresponds to $Sr_{2.04}Na_{2.03}Al_{2.01}(PO_4)_{1.00}F_{8.97}$.

Occurrence: A rare mineral within greisen formed at the contact zone of a cryolite ore body.

Association: Fluorite, cryolite, sphalerite, pyrite, zircon, chalcopyrite, galena, molybdenite, albite, muscovite, quartz.

Distribution: Found in the Ivigtut cryolite deposit, southern Greenland.

Name: Honoring the Danish mineralogist Ove Balthasar Bøggild (1872–1956), Professor of Geology, University of Copenhagen, Copenhagen, Denmark.

Type Material: University of Copenhagen, Copenhagen, Denmark, 1857.155a.

References: (1) Pauly, H. (1956) Bøggildite, a new phosphate-fluoride from Ivigtut, South Greenland. Medd. Grønland, 137(6), 1–17. (2) Møller, C.K. (1956) X-ray investigation of bøggildite. Medd. Grønland, 137(6), 1–15. (3) (1956) Amer. Mineral., 41, 959 (abs. refs. 1 and 2). (4) Hawthorne, F.C. (1982) The crystal structure of bøggildite. Can. Mineral., 20, 263–270.