Schlüterite-(Y) $(Y,REE)_2Al(Si_2O_7)(OH)_2F$

Crystal Data: Monoclinic. *Point Group*: 2/*m.* Crystals, to 1 mm, are acicular to bladed, flattened on {001} and elongated along [010] with dominant {001}. As dense divergent fibrous sprays to 2 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = 5.5-6 D(meas.) = n.d. D(calc.) = 4.644

Optical Properties: Transparent. *Color*: Pale pink. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (+). α = 1.755(5) β = 1.760(5) γ = 1.770(5) 2V(meas.) = 71.8(5)° 2V(calc.) = 71° *Orientation*: $X \wedge a$ = 83.1° (β obtuse), Y // b, $Z \wedge c$ = 50.3° (β acute).

Cell Data: *Space Group*: $P2_1/c$. a = 7.0722(2) b = 5.6198(1) c = 21.4390(4) β = 122.7756(3)° Z = 4

X-ray Powder Pattern: Stetind pegmatite, Tysfjord, Nordland, Norway.
4.769 (100), 2.972 (55), 3.289 (51), 2.728 (49), 2.810 (37), 3.013 (37), 4.507 (36)

Chemistry:	(1)		(1)
SiO_2	22.64	Gd_2O_3	4.65
Al_2O_3	9.45	Dy_2O_3	4.21
Y_2O_3	15.35	Er_2O_3	2.31
La_2O_3	3.25	Yb_2O_3	1.86
Ce_2O_3	9.69	F	2.71
Pr_2O_3	2.05	H_2O	[3.78]
Nd_2O_3	9.50	$-O = F_2$	1.14
Sm_2O_3	3.57	Total	93.88

(1) Stetind pegmatite, Tysfjord, Nordland, Norway; average of 6 electron microprobe analyses, H_2O calculated from structure analysis; FTIR spectroscopy confirms OH; corresponding to $(Yr_{0.73}Ce_{0.32}Nd_{0.30}Gd_{0.14}Dy_{0.12}La_{0.11}Sm_{0.11}Pr_{0.07}Er_{0.06}Yb_{0.05})_{\Sigma=2.01}Al_{0.99}Si_{2.01}O_7(OH)_{2.24}F_{0.76}$.

Occurrence: As inclusions in yttrium-rich fluorite in a NYF-type quartz-microcline pegmatite.

Association: Fluorite, bastnäsite-(Ce), yttrian fluorite, fluorthalénite-(Y), hematite, hundholmenite-(Y), kuliokite-(Y), perbøeite-(Ce), törnebohmite-(Ce), vyuntspakhkite-(Y).

Distribution: From the Stetind pegmatite, Tysfjord, Nordland, Norway.

Name: Honors Professor Jochen Schlüter (b. 1955), curator and director of the Mineralogical Museum of the University of Hamburg since 1988, who has described 20 new minerals to date from the Stetind pegmatite and indicates the dominant rare-earth element as a suffix.

Type Material: Department of Natural History, Royal Ontario Museum, Toronto, Ontario, Canada (M56409) and the Natural History Museum, Oslo, Norway (42428-42429).

References: (1) Cooper, M.A., T.A. Husdal, N.A. Ball, Y.A. Abdu, and F.C. Hawthorne (2013) Schlüterite-(Y), ideally $(Y,REE)_2Al(Si_2O_7)(OH)_2F$, a new mineral species from the Stetind pegmatite, Tysfjord, Nordland, Norway: description and crystal structure. Mineral. Mag., 77(3), 353-366. (2) (2015) Amer. Mineral., 100, 2360 (abs. ref. 1).