Perettiite-(Y) $Y^{3+}{}_2Mn^{2+}{}_4Fe^{2+}Si_2B_8O_{24}$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As acicular crystals, to 3 mm, elongated along [010] and displaying {100} and {001}. *Twinning*: Intimately twinned causing (010) cross-sections to mimic tetragonal symmetry.

Physical Properties: *Cleavage*: Good on {010}. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = ~ 7 VHN = 100 (300 g load). D(meas.) = n.d. D(calc.) = 4.533

Optical Properties: Transparent. *Color*: Yellow. *Streak*: Colorless. *Luster*: Vitreous. *Optical Class*: Biaxial (appears uniaxial due to twinning). α = 1.82(1) β = n.d. (due to twinning) γ = 1.84(1) 2V = n.d. Under crossed polars, (010) sections display 'hourglass pattern' similar to apophyllite with undulatory extinction.

Cell Data: *Space Group*: *Pmna*. *a* = 12.8252(5) *b* = 4.6187(2) *c* = 12.8252(5) Z = 2

X-ray Powder Pattern: Momeik, Myanmar.
3.05 (100), 2.64 (67), 2.54 (60), 4.63 (52), 1.84 (52), 1.87 (33), 4.08 (28)

Chemistry:

	(1)		(1)
Li_2O	0.32	Sm_2O_3	0.24
BeO	0.75	Gd_2O_3	0.71
B_2O_3	24.86	Tb_2O_3	0.29
MgO	0.27	Dy_2O_3	2.62
Al_2O_3	0.56	Ho_2O_3	0.53
SiO_2	11.26	Er_2O_3	1.78
CaO	2.02	Tm_2O_3	0.33
MnO	22.06	Yb_2O_3	2.85
FeO	4.89	Lu_2O_3	0.38
Y_2O_3	22.32	ThO_2	0.33
ZrO_2	0.19	Total	99.56

(1) Momeik, Myanmar; laser ablation-inductively coupled plasma-mass spectrometric analysis supplemented by FTIR and Raman spectroscopy; corresponding to $Y_{2.06}Ln_{0.53}Zr_{0.02}Th_{0.01}Mn_{3.24}Ca_{0.38}Fe_{0.71}Mg_{0.07}Al_{0.11}Li_{0.22}Si_{1.95}B_{7.44}Be_{0.31}O_{24}$.

Occurrence: As inclusions in gemmy phenakite crystals from pockets in granitic pegmatite.

Association: Schorl, tusionite, columbite-(Mn), albite, fluorapatite, lazulite.

Distribution: From Khetchel, Molo area, Momeik, north of Mogok, Myanmar.

Name: Honors mineralogist and gemologist Adolf Peretti (b. 1957), mineralogist and Head of GRS GemResearch Swisslab AG, Switzerland, who first recognized inclusions in phenakite.

Type Material: Museum of Natural History, Bern, Switzerland (43035).

References: (1) Danisi, R.M., T. Armbruster, E. Libowitzky, H.A.O. Wang, D. Günther, M. Nagashima, E. Reusser, and W. Bieri (2015) Perettiite-(Y), $Y^{3+}{}_2Mn^{2+}{}_4Fe^{2+}[Si_2B_8O_{24}]$, a new mineral from Momeik, Myanmar. Eur. J. Mineral., 27(6), 793-803. (2) (2016) Amer. Mineral., 101, 1923 (abs. ref. 1).