Ramikite-(Y) $Li_4Na_{12}(Y,Ca,REE)_6Zr_6(PO_4)_{12}(CO_3)_4O_4(F,OH)_4$

Crystal Data: Triclinic. *Point Group*: 1. As cores of equant, well-formed pseudocubes to 1 mm; intimately intergrown with peatite-(Y).

Physical Properties: *Cleavage*: Weak to poor on {100}, {010}, {001} probable.
Fracture: Splintery. *Tenacity*: Brittle. Hardness = ~ 3 D(meas.) = n.d. D(calc.) = 3.60(1)

Optical Properties: Translucent. *Color*: Yellowish white. *Streak*: White. *Luster*: Sub-vitreous to dull.
Optical Class: Biaxial (n.d.). α = n.d. β = 1.636(1) γ = n.d. 2V(meas.) = n.d.
2V(calc.) = n.d. *Pleochroism:* None. *Dispersion*: None.

Cell Data: *Space Group*: *P*1. a = 10.9977(6) b = 10.9985(6) c = 10.9966(6)
α = 90.075(4)º β = 89.984(4)º γ = 89.969(4)º Z = 1

X-ray Powder Pattern: Poudrette pegmatite, Mont Saint-Hilaire, Canada.
3.89 (100), 2.94 (98), 2.59 (98), 7.80 (79), 11.04 (76), 6.36 (75), 3.48 (68)

Chemistry:

	(1)	(2)		(1)	(2)
Na_2O	11.25	12.77	ZrO_2	23.40	25.39
CaO	4.15		ThO_2	0.49	
La_2O_3	0.11		HfO_2	0.69	
Y_2O_3	16.48	23.26	P_2O_5	28.10	29.25
Nd_2O_3	0.08		F	0.62	
Dy_2O_3	1.11		$–O=F_2$	0.26	
Ce_2O_3	0.10		CO_2	[5.92]	6.04
Er_2O_3	1.18		H_2O	[0.92]	1.24
Tm_2O_3	0.28		Li_2O	[2.01]	2.05
Yb_2O_3	0.57		Total	99.75	100.00
Al_2O_3	0.14				

(1) Poudrette pegmatite, Mont Saint-Hilaire, Canada; average of 22 electron microprobe analyses, H_2O, CO_2 and Li_2O calculated from stoichiometry and their presence confirmed by LA-ICP-MS and Raman analyses; corresponding to $Li_4(Na_{10.79}Ca_{1.21})_{\Sigma=12}(Y_{4.34}Ca_{0.99}Dy_{0.18}Er_{0.18}Yb_{0.09}La_{0.02}Ce_{0.02}Nd_{0.01})_{\Sigma=5.83}(Zr_{5.65}Hf_{0.10}Th_{0.06})_{\Sigma=5.81}[(P_{0.98}Al_{0.01})_{\Sigma=0.99}O_4]_{12}(CO_3)_4O_4[(OH)_{3.03}F_{0.97}]_{\Sigma=4}$.
(2) $Li_4Na_{12}Y_6Zr_6(PO_4)_{12}(CO_3)_4O_4(OH)_4$.

Occurrence: A late-stage product possibly related to the in situ alteration of the pre-existing mineral assemblage present in the core of a zoned peralkaline pegmatite dike encased in a hornfels xenolith.

Association: Peatite-(Y), albite, rhodochrosite, siderite, chabazite-Na, synchysite-(Ce), sabinaite.

Distribution: From the Poudrette pegmatite, Mont Saint-Hilaire, La Vallée-du-Richelieu, Montérégie (formerly Rouville County), Québec, Canada.

Name: Honors Robert A.J. Ramik (*b.*1951), an analytical technician and mineralogist in the Department of Natural History, Royal Ontario Museum, Toronto, Ontario, Canada.

Type Material: The Royal Ontario Museum, Toronto, Ontario, Canada (M53893).

References: (1) McDonald, A.M., M.E. Back, R.A. Gault, and L. Horváth (2013) Peatite-(Y) and ramikite-(Y), two new Na-Li-Y±Zr phosphate-carbonate minerals from the Poudrette pegmatite, Mont Saint-Hilaire, Quebec. Can. Mineral., 51, 569-596. (2) (2014) Amer. Mineral., 99, 2441 (abs. ref. 1).