Hydroterskite $Na_2ZrSi_6O_{12}(OH)_6$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. Short prismatic crystals, to 3 mm, display {100}, {010}, and {001}.

Physical Properties: *Cleavage*: Good on 'the prismatic planes'. *Fracture*: Splintery. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.57

Optical Properties: Translucent. *Color*: Pale gray. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (-). α = 1.562(2) β = 1.567(2) γ = 1.571(2) 2V(meas.) = 86(3)° 2V(calc.) = 83° *Dispersion and pleochroism*: None. *Orientation*: $X = c$, $Y = b$, $Z = a$.

Cell Data: Space Group: *Pnca*. a = 13.956(6) b = 14.894(7) c = 7.441(4) Z = 4

X-ray Powder Pattern: Saint-Amable sill, Demix-Varennes quarry, Québec, Canada. 3.322 (100), 3.283 (80), 7.427 (56), 4.123 (55), 3.716 (53), 3.482 (51), 5.093 (49)

Chemistry:	(1)		(1)
Na_2O	7.82	HfO_2	0.11
K_2O	0.07	ThO_2	1.15
CaO	0.62	ZrO_2	15.00
FeO	0.89	TiO_2	1.15
MnO	0.71	Nb_2O_5	1.12
Al_2O_3	0.08	F	0.11
La_2O_3	0.12	H_2O	[8.79]
Ce_2O_3	0.24	$-O = F_2$	0.05
SiO_2	59.82	Total	96.84

(1) Saint-Amable sill, Demix-Varennes quarry, near Varennes, Québec, Canada; average of 3 electron microprobe analyses supplemented by IR spectroscopy, H_2O calculated from stoichiometry; corresponds to $(Na_{1.54}K_{0.01}Ca_{0.07}La_{0.01}Ce_{0.01})_{\Sigma=1.64}(Zr_{0.74}Ti_{0.09}Nb_{0.05}Th_{0.01}Fe_{0.08}Mn_{0.06}Al_{0.01})_{\Sigma=1.04}$ $Si_{6.09}O_{12}[(OH)_{5.96}F_{0.04}]_{\Sigma=6}$.

Occurrence: Formed in cavities in a phonolite sill, by post-magmatic hydrothermal processes.

Association: Manganoneptunite, aegirine, analcime, an astrophyllite-group mineral, catapleiite, a eudialyte-group mineral, fluorite, monazite, natrolite, a rinkite-group species.

Distribution: From the Saint-Amable sill, Demix-Varennes quarry, near Varennes, Québec, Canada.

Name: For the mineral's essential water (*hydro*xyl) and relation to *terskite*.

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 86896).

References: (1) Grice, J.D., R. Rowe, and G. Poirier (2015) Hydroterskite: a new mineral species from the Saint-Amable Sill, Quebec, and a comparison with terskite and elpidite. Can. Mineral., 53, 821-832. (2) (2017) Amer. Mineral., 102, 468-469 (abs. ref. 1).