Khomyakovite $Na_{12}Sr_3Ca_6Fe_3Zr_3W(Si_{25}O_{73})(O, OH, H_2O)_3(Cl, OH)_2$

Crystal Data: Hexagonal. *Point Group*: 3*m.* As pseudo-octahedral crystals to 0.5 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 5-6 D(meas.) = n.d. D(calc.) = 3.14 Nonfluorescent.

Optical Properties: Transparent to translucent. *Color*: Orange to orange-red. *Streak*: White. *Luster*: Vitreous.
Optical Class: Uniaxial (-). ω = 1.6279(5) ε = l.6254(5) *Pleochroism*: Moderate, *E* = pale yellow, *O* = yellow-orange.

Cell Data: *Space Group*: *R*3*m*. *a* = 14.2959(8) *c* = 30.084(3) Z = 3

X-ray Powder Pattern: Poudrette quarry, Mont Saint-Hilaire, Canada. [Manganokhomyakovite] 2.980 (100), 11.500 (90), 2.856 (80), 9.535 (70), 6.452 (50), 6.072 (50), 5.735 (50)

Chemistry:

	(1)		(1)
Na_2O	11.35	SiO_2	43.70
K_2O	0.52	TiO_2	0.11
MgO	0.04	ZrO_2	10.62
CaO	10.42	HfO_2	0.18
MnO	1.63	Nb_2O_5	1.33
FeO	4.33	Ta_2O_5	0.02
SrO	8.45	WO_3	3.80
Al_2O_3	0.09	Cl	0.67
La_2O_3	0.21	H_2O	[0.87]
Ce_2O_3	0.18	- O = Cl	0.15
		Total	98.37

(1) Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada; average electron microprobe, H_2O calculated from stoichiometry; corresponds to $(Na_{12.26}K_{0.38}Ca_{0.33}Sr_{0.13}REE_{0.08})_{\Sigma=13.05}(Sr_{2.78}Na_{0.22})_{\Sigma=3.00}Ca_6(Fe_{2.05}Mn_{0.78}Mg_{0.03})_{\Sigma=2.86}(Zr_{2.94}Ti_{0.05}Hf_{0.03})_{\Sigma=3.02}(W_{0.56}Nb_{0.34})_{\Sigma=0.90}(Si_{24.78}Al_{0.06})_{\Sigma=24.84}O_{73}(O,OH,H_2O)_{3.70}[(OH)_{1.36}Cl_{0.64}]_{\Sigma=2.00}$.

Mineral Group: Eudialyte group.

Occurrence: In miarolitic cavities in nepheline syenite in an alkaline intrusive complex.

Association: Analcime, annite, calcite, natrolite, pyrite, titanite.

Distribution: At the Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada [TL].

Name: Honors Dr. Alexander Petrovich *Khomyakov* (b. 1933), of the Institute of Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements, Moscow, Russia, for his contributions to the mineralogy and geochemistry of alkaline rocks, in particular those of agpaitic character.

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 81557).

References: (1) Johnsen, O., R.A. Gault, J.D. Grice, and T.S. Ercit (1999) Khomyakovite and manganokhomyakovite, two new members of the eudialyte group from Mont Saint-Hilaire, Quebec, Canada. Can. Mineral., 37(4), 893-899. (2) (2000) Amer. Mineral., 85, 874-875 (abs. ref. 1).