

**Khomyakovite****Na<sub>12</sub>Sr<sub>3</sub>Ca<sub>6</sub>Fe<sub>3</sub>Zr<sub>3</sub>W(Si<sub>25</sub>O<sub>73</sub>)(O, OH, H<sub>2</sub>O)<sub>3</sub>(Cl, OH)<sub>2</sub>**

**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 (-).  $\omega = 1.6279(5)$   $\varepsilon = 1.6254(5)$  *Pleochroism:* Moderate, *E* = pale yellow, *O* = yellow-orange.

**Cell Data:** *Space Group:* R3*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)

<b>Chemistry:</b>	(1)		(1)
Na <sub>2</sub> O	11.35	SiO <sub>2</sub>	43.70
K <sub>2</sub> O	0.52	TiO <sub>2</sub>	0.11
MgO	0.04	ZrO <sub>2</sub>	10.62
CaO	10.42	HfO <sub>2</sub>	0.18
MnO	1.63	Nb <sub>2</sub> O <sub>5</sub>	1.33
FeO	4.33	Ta <sub>2</sub> O <sub>5</sub>	0.02
SrO	8.45	WO <sub>3</sub>	3.80
Al <sub>2</sub> O <sub>3</sub>	0.09	Cl	0.67
La <sub>2</sub> O <sub>3</sub>	0.21	H <sub>2</sub> O	[0.87]
Ce <sub>2</sub> O <sub>3</sub>	0.18	- O = Cl	0.15
		Total	98.37

(1) Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada; average electron microprobe, H<sub>2</sub>O calculated from stoichiometry; corresponds to (Na<sub>12.26</sub>K<sub>0.38</sub>Ca<sub>0.33</sub>Sr<sub>0.13</sub>REE<sub>0.08</sub>) $\Sigma=13.05$ (Sr<sub>2.78</sub>Na<sub>0.22</sub>) $\Sigma=3.00$ Ca<sub>6</sub>(Fe<sub>2.05</sub>Mn<sub>0.78</sub>Mg<sub>0.03</sub>) $\Sigma=2.86$ (Zr<sub>2.94</sub>Ti<sub>0.05</sub>Hf<sub>0.03</sub>) $\Sigma=3.02$ (W<sub>0.56</sub>Nb<sub>0.34</sub>) $\Sigma=0.90$ (Si<sub>24.78</sub>Al<sub>0.06</sub>) $\Sigma=24.84$ O<sub>73</sub>(O, OH, H<sub>2</sub>O)<sub>3.70</sub> [(OH)<sub>1.36</sub>Cl<sub>0.64</sub>] $\Sigma=2.00$ .

**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).