Ozerovaite $Na_2KAl_3(AsO_4)_4$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As tabular crystals to 0.04 mm and in masses to 0.13 mm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.439

Optical Properties: Transparent. *Color*: Colorless to pale yellow. *Streak*: White. *Luster*: Vitreous.
Optical Class: Biaxial (-). α(calc.) = 1.645 β = 1.667(2) γ = 1.674(2) 2V(meas.) = 58(10)°

Cell Data: Space Group: *Cmca*. a = 10.615(2) b = 20.937(3) c = 6.393(1) Z = 4

X-ray Powder Pattern: Second cinder cone, Tolbachik volcano, Russia.
2.824 (100), 2.922 (83), 2.735 (71), 5.47 (47), 4.84 (47), 10.37 (44), 3.07 (26)

Chemistry:

	(1)	(2)
Na_2O	7.71	8.59
K_2O	6.91	6.53
As_2O_5	61.8	63.69
P_2O_5	0.70	
CuO	1.18	
Al_2O_3	18.23	22.19
Fe_2O_3	3.48	
ZnO	0.37	.
Total	100.04	100.00

(1) Second cinder cone, Tolbachik volcano, Kamchatka Peninsula, Russia; average of 4 EDS analyses; corresponds to $(Na_{1.82}K_{1.08})_{\Sigma=2.90}(Al_{2.62}Fe_{0.32}Cu_{0.12}Zn_{0.02})_{\Sigma=3.08}(As_{3.95}P_{0.07})_{\Sigma=4.2}O_{16}$.
(2) $Na_2KAl_3(AsO_4)_4$.

Occurrence: As sublimates on basaltic scoria near a volcanic fumarole vent (410-420 °C.).

Association: Ponomarevite, piypite, dolerophanite, euchlorine, sylvite, lammerite, johillerite, urusovite, bradaczekite, filatovite, hatertite, hematite, tenorite, wrightite.

Distribution: From the Second cinder cone, Tolbachik volcano, Kamchatka Peninsula, Russia.

Name: Honors the Russian scholar Dr. Nina Aleksandrovna Ozerova (1930-2012), for her contributions to geochemistry, geology, metallogeny, ecology and the eco-geochemistry of mercury.

Type Material: Mineralogical Museum, St. Petersburg State University, St. Petersburg, Russia (1/19655).

References: (1) Shablinskii, A.P., S.K. Filatov, L.P. Vergasova, E.Yu. Avdontseva, S.V. Moskaleva and A.V. Povolotskiy (2019) Ozerovaite, $Na_2KAl_3(AsO_4)_4$, new mineral species from Tolbachik volcano, Kamchatka peninsula, Russia. Eur. J. Mineral., 31(1), 159-166. (2) (2019) Amer. Mineral., 104(12), 1868-1869 (abs. ref. 1).