Pansnerite $K_3Na_3Fe^{3+}_6(AsO_4)_8$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As tabular to lamellar crystals flattened on {010} to 1 mm, usually pseudohexagonal, in clusters to 2 mm.

Physical Properties: *Cleavage*: Perfect on {010}. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = ~3 D(meas.) = n.d. D(calc.) = 3.596

Optical Properties: Transparent to translucent. *Color*: Light green, pale greenish, yellowish greenish or yellowish. *Streak*: n.d. *Luster*: Vitreous.
Optical Class: Biaxial (-). α = 1.702(4) β = 1.713(4) γ = 1.717(4) 2V(meas.) = 45(10)° 2V(calc.) = 62°

Cell Data: *Space Group*: *Cmce*. a = 10.7372(3) b = 20.8367(8) c = 6.47335(15) Z = 2

X-Ray Diffraction Pattern: Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. 10.49 (100), 5.380 (88), 4.793 (65), 2.783 (65), 2.694 (52), 3.105 (46), 2.932 (35)

Chemistry:

	(1)	(2)		(1)	(2)
Na_2O	6.39	5.69	Al_2O_3	7.35	
K_2O	8.52	8.65	Cr_2O_3	0.04	
CaO	0.08		Fe_2O_3	16.72	29.34
MgO	0.08		SiO_2	0.16	
MnO	0.02		P_2O_5	0.22	
NiO	0.02		V_2O_5	0.09	
CuO	1.35		As_2O_5	57.76	56.32
ZnO	0.34		SO_3	0.04	.
			Total	99.20	100.00

(1) Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to $K_{2.86}Na_{3.26}Ca_{0.02}(Fe^{3+}_{3.31}Al_{2.28}Cu_{0.27}Zn_{0.07}Mg_{0.03}Cr_{0.01})_{\Sigma=5.97}(As_{7.95}P_{0.05}Si_{0.04}V_{0.02}S_{0.01})_{\Sigma=8.06}O_{32}$. (2) $K_3Na_3Fe^{3+}_6(AsO_4)_8$.

Polymorphism & Series: Solid-solution series with ozerovaite.

Occurrence: A sublimate at an active volcanic fumarole.

Association: Aphthitalite, hematite, sanidine, badalovite, khrenovite, achyrophanite, arsenatrotitanite, ozerovaite, tilasite, calciojohillerite, johillerite, nickenichite, svabite, katiarsite, yurmarinite, anhydrite, rutile, cassiterite, pseudobrookite.

Distribution: From the Arsenatnaya fumarole, Second scoria cone of the Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: Honors Lavrentiy Ivanovich *Pansner* (1777-1851), German-Russian mineralogist and geographer and specialist in the studies of physical properties of minerals. He was the first Ordinary Professor of Mineralogy at St Petersburg University (1819-1822) and one of the founders of the Russian Mineralogical Society (1817) and its first Director (1817-1824).

Type Material: A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (95899 and 95911).

References: (1) Pekov, I.V., N.V. Zubkova, N.N. Koshlyakova, A.A. Agakhanov, D.I. Belakovskiy, M.F. Vigasina, V.O. Yapaskurt, S.N. Britvin, A.G. Turchkova, E.G. Sidorov, and D.Y. Pushcharovsky (2020) New arsenate minerals from the Arsenatnaya fumarole, Tolbachik volcano, Kamchatka, Russia. XIII. Pansnerite, $K_3Na_3Fe^{3+}_6(AsO_4)_8$. Mineral. Mag., 84, 143-151.