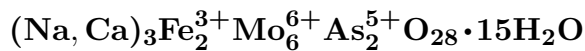


Sodium betpakdalite



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Crystal Data: Monoclinic. *Point Group:* n.d. Crystals are pseudo-hexagonal, very thin, platy, to several μm ; as powdery aggregates, crusts, and films.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 2.02$ $D(\text{calc.}) = \text{n.d.}$

Optical Properties: Semitransparent. *Color:* Lemon-yellow. *Luster:* Dull in aggregates. *Optical Class:* Biaxial. *Pleochroism:* Distinct; $X = \text{pale yellow}$; $Z = \text{yellow}$. *Orientation:* $Z \wedge \text{elongation} = 38^\circ$. *Absorption:* $Z > X$. $\alpha = 1.792$ $\beta = \text{n.d.}$ $\gamma = 1.810$ $2V(\text{meas.}) = \text{n.d.}$

Cell Data: *Space Group:* n.d. $Z = \text{n.d.}$

X-ray Powder Pattern: [Kyzylsai deposit, Kazakhstan].
8.73 (10), 3.629 (9), 1.836 (8), 3.243 (7), 2.940 (7), 2.752 (7), 2.071 (7)

Chemistry:	(1)
MoO ₃	50.22
SO ₃	0.00
As ₂ O ₅	13.93
SiO ₂	0.20
Al ₂ O ₃	0.40
Fe ₂ O ₃	11.25
MgO	0.22
CaO	4.23
Na ₂ O	3.14
K ₂ O	0.20
H ₂ O ⁺	16.65
Total	[100.44]

(1) [Kyzylsai deposit, Kazakhstan]; original total given as 100.48%, H₂O confirmed by IR; corresponds to $(\text{Na}_{1.71}\text{Ca}_{1.28})_{\Sigma=2.99}\text{Fe}_{2.05}^{3+}\text{Mo}_{5.90}^{6+}\text{As}_{2.05}^{5+}\text{O}_{28} \cdot 15.27\text{H}_2\text{O}$.

Occurrence: A rare secondary mineral formed in the oxidation zone of a Mo-U deposit.

Association: Natrojarosite, goethite, arsenian pyrite, calcite.

Distribution: From an unspecified locality [Kyzylsai deposit, Chu-Ili Mountains, southwestern Balkhash Lake region, Kazakhstan].

Name: For a sodium-bearing mineral showing some relation to *betpakdalite*.

Type Material: Mining Institute, St. Petersburg, 1883/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 74275, 74276.

References: (1) Skvortsova, K.V., G.A. Sidorenko, Y.S. Nesterova, G.A. Arapova, A.D. Dara, and L.I. Rybakova (1971) Sodium betpakdalite and conditions of its formation. *Zap. Vses. Mineral. Obshch.*, 100, 603–611 (in Russian). (2) (1972) *Amer. Mineral.*, 57, 1312–1313 (abs. ref. 1). (3) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. *Ocean Pictures*, Moscow, 191.