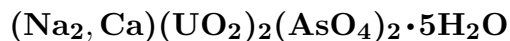


## Sodium uranospinite



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**Crystal Data:** Tetragonal. *Point Group:*  $4/m\ 2/m\ 2/m$ . Imperfect lathlike to fibrous elongated crystals, to 2 cm, in divergent or irregular aggregates, and as incrustations.

**Physical Properties:** *Cleavage:* On {001}, perfect; on {010}, distinct. Hardness = 2.5  
D(meas.) = 3.846 D(calc.) = [3.66] Fluoresces bright yellowish green under UV. Radioactive.

**Optical Properties:** Semitransparent. *Color:* Yellow-green, lemon-yellow, straw-yellow.  
*Luster:* Vitreous, pearly on cleavages.

*Optical Class:* Uniaxial (-), commonly anomalously biaxial (-). *Pleochroism:* Faint; X = colorless; Y = Z = yellow.  $\omega = 1.612$   $\epsilon = 1.585$   $2V(\text{meas.}) = \text{Small}$ .

**Cell Data:** *Space Group:*  $[P4/nmm]$  (by analogy to meta-autunite).  $a = 7.12$   $c = 8.61$   
Z = 1

**X-ray Powder Pattern:** Bota-Burum deposit, Kazakhstan.  
8.48 (10), 3.68 (10), 3.292 (9), 1.837 (9), 1.987 (8), 1.634 (8), 5.45 (7)

### Chemistry:

	(1)
UO <sub>3</sub>	58.29
P <sub>2</sub> O <sub>5</sub>	1.65
As <sub>2</sub> O <sub>5</sub>	20.84
SiO <sub>2</sub>	2.39
Al <sub>2</sub> O <sub>3</sub>	0.91
Fe <sub>2</sub> O <sub>3</sub>	0.57
MgO	trace
CaO	1.87
Na <sub>2</sub> O	3.91
K <sub>2</sub> O	0.00
H <sub>2</sub> O <sup>+</sup>	3.49
H <sub>2</sub> O <sup>-</sup>	6.00
Total	99.92

(1) Bota-Burum deposit, Kazakhstan; neglecting Si, Al, Fe as impurities, corresponds to  $(\text{Na}_{1.26}\text{Ca}_{0.34})_{\Sigma=1.60}(\text{UO}_2)_{2.04}[(\text{AsO}_4)_{1.82}(\text{PO}_4)_{0.22}]_{\Sigma=2.04} \cdot 5.27\text{H}_2\text{O}$ .

**Mineral Group:** Meta-autunite group.

**Occurrence:** In the oxidized zone of a uranium-sulfide deposit in felsite porphyry and sodium-bearing tuffaceous breccias (Bota-Burum deposit, Kazakhstan).

**Association:** Realgar, orpiment, scorodite, mansfieldite, trögerite, arseniosiderite, metatorbernite, metazeunerite, uranophane, uraninite, arsenopyrite, pyrite, galena (Bota-Burum deposit, Kazakhstan).

**Distribution:** In the Bota-Burum uranium deposit, 15 km southwest of Alakol Lake, Chu-Ili Mountains, southwestern Balkhash district, Kazakhstan. At the Buhlskopf mine, near Ellweiler, Rhineland-Palatinate, Germany. On the Clyde Long property, Elk Park, San Juan Co., Colorado, USA.

**Name:** For its dominant *sodium* content and relation to *uranospinite*.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72124-74126.

**References:** (1) Kopchenova, E.V. and K.V. Skvortsova (1957) Sodium uranospinite. Doklady Acad. Nauk SSSR, 114, 634-636 (in Russian). (2) (1958) Amer. Mineral., 43, 383-384 (abs. ref. 1). (3) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 191.

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