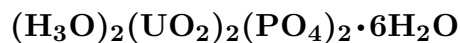


## Chernikovite



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**Crystal Data:** Tetragonal. *Point Group:*  $4/m\ 2/m\ 2/m$ . As thin platy crystals, elongated along [010]; as oriented inclusions in autunite and meta-autunite.

**Physical Properties:** *Cleavage:* Perfect on {001}; imperfect on {010}. Hardness = n.d.  $D(\text{meas.}) = 3.259$   $D(\text{calc.}) = 3.258\text{--}3.264$  Intense yellow-green fluorescence. Radioactive.

**Optical Properties:** Transparent. *Color:* Pale yellow to lemon-green [sic]. *Luster:* Vitreous. *Optical Class:* Uniaxial (-), may be anomalously biaxial. *Pleochroism:* Slight to none.  $\omega = 1.580\text{--}1.583$   $\epsilon = 1.569\text{--}1.570$   $2V(\text{meas.}) = 5^\circ\text{--}10^\circ$

**Cell Data:** *Space Group:*  $P4/nmm$ .  $a = 7.016\text{--}7.030$   $c = 9.034\text{--}9.055$   $Z = 1$

**X-ray Powder Pattern:** Karakat deposit, Tajikistan. 4.99 (100), 3.54 (100), 3.26 (100), 5.51 (90), 3.82 (80), 2.16 (70), 2.09 (70)

**Chemistry:** (1) An analysis of natural material has not been made; the species rests on qualitative spectrographic analyses and identity of other properties with those of synthetic material.

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

**Occurrence:** In fissures in quartz syenite and around fossil wood (Karakat deposit, Tajikistan); along fractures in tourmaline-bearing granites and granite pegmatites (Perus district, Brazil).

**Association:** Autunite, meta-autunite, sodium autunite (Karakat deposit, Tajikistan); autunite, meta-autunite, uranophane, uranophane-beta, phosphuranylite, torbernite, metatorbernite, haiweeite, uranian "opal" (Perus district, Brazil).

**Distribution:** From the Karakat uranium deposit, 60 km northwest of Khodzhent (Leninabad), Karamazar Mountains, Tajikistan. In the Perus district, 25 km north of São Paulo, Brazil. In Germany, in the Rockelmann quarry, near Schwarzenberg, Saxony, and from Ronneburg, Thuringia.

**Name:** To honor Dr. Andrei Andreevich Chernikov (1927– ), Institute of Mineralogy and Geochemistry of Rare Elements, Moscow, Russia, who first described naturally-occurring material.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 88655.

**References:** (1) Chernikov, A.A. (1958) New data on some uranium and uranium-bearing minerals. Proc. 2nd United Nations int. conf. on the peaceful uses of atomic energy, 2, 298–299 [hydrogen-autunite = chernikovite]. (2) Atencio, D. (1988) Chernikovite, a new mineral name for  $(\text{H}_3\text{O})_2(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$ . Mineral. Record, 19, 249–252. (3) Morosin, B. (1978) Hydrogen uranyl phosphate tetrahydrate, a hydrogen ion solid electrolyte. Acta Cryst., 34, 3732–3734.