## Przhevalskite $Pb(UO_2)_2(PO_4)_2 \cdot 4H_2O$



**Crystal Data:** Tetragonal. *Point Group:* n.d. Crystals are tabular, to 1 mm, in foliated aggregates.

**Physical Properties:** *Cleavage:* On {001}, good. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.38 Radioactive.

**Optical Properties:** Semitransparent. *Color:* Bright yellow with faint greenish tint. *Luster:* Adamantine, vitreous to pearly.
*Optical Class:* Biaxial (–). *Pleochroism:* $X$ = colorless; $Y$ = pale yellow; $Z$ = deep yellow. *Orientation:* Extinction parallel, elongation negative. $\alpha = 1.739$ $\beta = 1.749(2)$ $\gamma = 1.752(2)$ 2V(meas.) = $\sim 30°$

**Cell Data:** *Space Group:* n.d. $a = 7.24$ $c = 18.22$ Z = 2

**X-ray Powder Pattern:** Synthetic.
3.610 (10), 9.080 (9), 1.619 (6), 1.530 (6), 9.490 (5), 2.629 (5), 1.960 (5)

**Chemistry:**

| | (1) | (2) |
|---|---|---|
| $UO_3$ | 46.55 | 56.68 |
| $P_2O_5$ | 11.47 | 14.06 |
| $SiO_2$ | 4.10 | |
| $Al_2O_3$ | 3.48 | |
| PbO | 21.06 | 22.12 |
| $H_2O$ | 6.69 | 7.14 |
| Total | 93.35 | 100.00 |

(1) Dzherkamar deposit, Tajikistan; $SiO_2$ and $Al_2O_3$ considered as "metahalloysite" impurity.
(2) $Pb(UO_2)_2(PO_4)_2 \cdot 4H_2O$.

**Occurrence:** A rare secondary mineral in the oxidized zone of a uranium deposit.

**Association:** Torbernite, autunite, dumontite, dewindtite, uranophane, wulfenite, hydrous Fe–Mn oxides, "metahalloysite".

**Distribution:** In the Dzherkamar uranium deposit, ten km southeast of Adraman, Karamazar Mountains, Tajikistan.

**Name:** Honoring Nikolai Mikhailovich Przheval'skii (1839–1888), Russian geographer and explorer of Central Asia.

**Type Material:** n.d.

**References:** (1) Soboleva, M.V. and I.A. Pudovkina (1957) Uranium Minerals Handbook, 408 pp, esp. 203–205 (in Russian). (2) Getseva, R.V. and K.T. Savel'eva (1956) Handbook for the determination of uranium minerals, 260 pp, esp. 213 (in Russian). (3) (1958) Amer. Mineral., 43, 381–382 (abs. refs. 1 and 2). (4) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 170–171.