## Strelkinite $Na_2(UO_2)_2(V_2O_8)\cdot 6H_2O$



**Crystal Data:** Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. Rare in platy to equant crystals, to 1.5 mm, which may be in fanlike aggregates; usually in powdery crusts.

**Physical Properties:** *Cleavage:* One, $\perp$ {001}, perfect. Hardness = 2–2.5 D(meas.) = 4.0–4.2 (corrected for impurities). D(calc.) = 4.22 Radioactive; fluoresces pale tobacco-green under UV.

**Optical Properties:** Semitransparent. *Color:* Gold-yellow to canary-yellow. *Luster:* Silky to pearly.
*Optical Class:* Biaxial (–). *Pleochroism:* Weak; $Y$ = yellow; $Z$ = pale yellow. *Orientation:* $X$ = $c$; $Y = b$; $Z = a$. $\alpha = 1.674$–$1.770$ $\beta = 1.855$–$1.907$ $\gamma = 1.880$–$1.915$ 2V(meas.) = Medium.

**Cell Data:** *Space Group:* $Pnmm$ or $Pnm2$. $a = 10.64(2)$ $b = 8.36(2)$ $c = 32.72(2)$
Z = 8

**X-ray Powder Pattern:** n.d.
7.68 (10), 3.95 (8), 4.08 (6), 3.20 (5), 8.18 (4), 2.007 (4), 3.55 (3)

**Chemistry:**

| | (1) | (2) | (3) |
|---|---|---|---|
| $UO_3$ | 61.48 | 56.95 | 61.91 |
| $V_2O_5$ | 21.30 | 18.50 | 19.68 |
| $SiO_2$ | | 4.40 | |
| $Al_2O_3$ | | 0.22 | |
| CaO | 0.40 | 1.44 | |
| $Na_2O$ | 8.35 | 6.20 | 6.71 |
| $K_2O$ | 0.00 | 0.20 | |
| $H_2O^+$ | 8.12 | 10.27 | 11.70 |
| LOI | | 2.23 | |
| Total | 99.65 | 100.41 | 100.00 |

(1) Basaral, Kazakhstan; CaO due to calcite impurity; corresponds to $Na_{2.28}(UO_2)_{1.84}(V_2O_8)\cdot 3.85H_2O$. (2) Do.; original LOI given as 12.50%, partitioned as $H_2O$ 10.27%, $CO_2$ 1.15%, reduction of $U^{6+}$ and $V^{5+}$ 1.08%, then deducting $SiO_2$, $Al_2O_3$, CaO, $K_2O$ as due to calcite and clay impurities, corresponds to $Na_{2.00}(UO_2)_{2.00}(V_2O_8)\cdot 5.70H_2O$. (3) $Na_2(UO_2)_2(V_2O_8)\cdot 6H_2O$.

**Occurrence:** Along seams and fractures in carbonaceous-siliceous shales.

**Association:** Calcite, quartz, iron hydroxides, clay minerals.

**Distribution:** From Basaral, ten km north of the Bota-Burum uranium deposit, Chi-Ili Mountains, Kazakhstan. In the Kendyktas Mountains, Kyzylkum district, Uzbekistan.

**Name:** To honor Professor Mikhail Fedorovich Strelkin (1905–1965), Russian mineralogist, Institute of Geology of Ore Deposits, Petrology, Mineralogy, and Geochemistry, Moscow, Russia, who studied uranium ores.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 74783, 74784.

**References:** (1) Alekseeva, M.A., A.A. Chernikov, D.P. Shashkin, E.A. Kon'kova, and I.N. Gavrilova (1974) Strelkinite – a new uranyl vanadate. Zap. Vses. Mineral. Obshch., 103, 576–580 (in Russian). (2) (1975) Amer. Mineral., 60, 488–489 (abs. ref. 1). (3) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 195–196.