Calciouranoite $(Ca, Ba, Pb)U_2O_7 \cdot 5H_2O$

Crystal Data: n.d. *Point Group:* n.d. Prismatic to acicular crystals, radial fibrous in spherulites.

Physical Properties: *Cleavage:* One direction, pinacoidal. Hardness = 4 D(meas.) = 4.62 D(calc.) = n.d.

Optical Properties: Translucent. *Color:* Red-orange, yellow-brown, orange-brown, brown; bright yellow in transmitted light. *Luster:* Greasy to dull.
Optical Class: Biaxial (–). *Pleochroism:* Strong; $X = Y$ = deep lemon-yellow; Z = pale yellow to almost colorless. *Absorption:* $X = Y > Z$. $\alpha = 1.76$ $\beta = 1.84$ $\gamma = 1.87$ 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Oktyabr'skoye U–Mo deposit; * = distinct lines, pattern indistinct otherwise.
4.00, *3.406, *3.050, 2.68, 2.00

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
UO_3	68.02	71.78	63.23	BaO	2.68		
As_2O_5	0.63			Na_2O	0.60		0.16
SiO_2	0.32	4.00	0.64	K_2O	5.81	0.06	1.77
Al_2O_3	0.34	0.69	0.20	H_2O^+	7.05	8.00	
Fe_2O_3	0.71		0.10	H_2O^-	5.31	3.03	
PbO	2.37	1.18	1.35	H_2O			7.29
CaO	5.86	6.77	14.90	CO_2			8.82
SrO			1.76	Total	99.70	[95.51]	100.22

(1) Oktyabr'skoye U–Mo deposit; after deduction of quartz impurity, corresponds to $(Ca_{0.74}Ba_{0.13}Pb_{0.07}Na_{0.06})_{\Sigma=1.00}U_{1.7}O_7 \cdot 4.8H_2O$. (2) Do.; original total given as 96.05%, after deduction of quartz impurity, corresponds to $(Ca_{0.95}Pb_{0.06})_{\Sigma=1.01}U_2O_7 \cdot 5H_2O$. (3) Do.; after deduction of calcite 20.25% and uranophane 1–2% corresponds to $(Ca_{0.58}K_{0.18}Sr_{0.16}Pb_{0.06}Na_{0.02})_{\Sigma=1.00}U_{2.12}O_7 \cdot 3.89H_2O$.

Occurrence: In stringers in felsite, deep in the oxidation zone of a U–Mo deposit, in water-saturated ore-bearing faults.

Association: Calcite, uranophane, bauranoite, metacalciouranoite, protasite.

Distribution: From the Oktyabr'skoye U–Mo deposit, 12 km southeast of Krasnokamensk, eastern Transbaikal, Russia.

Name: For CALCIum and URANium in the composition.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81272.

References: (1) Rogova, V.P., L.N. Belova, G.N. Kiziyarov, and N.N. Koznetsova (1974) Calciouranoite – a new hydroxide of uranium. Zap. Vses. Mineral. Obshch., 103, 108–109 (in Russian). (2) (1975) Amer. Mineral., 60, 161 (abs. ref. 1). (3) Fedorov, O.V., B.I. Ryzhkov, and G.V. Lyubomilova (1982) Potassium-strontium variety of calciouranoite. Doklady Acad. Nauk SSSR, 262, 209–213 (in Russian).