Plumbotellurite $PbTe^{4+}O_3$

Crystal Data: Orthorhombic. *Point Group:* n.d. As fine-grained aggregates in rims around and replacing altaite.

Physical Properties: Hardness = n.d. VHN = 30–42, 38 average (10 g load).
D(meas.) = 7.2 D(calc.) = 7.16

Optical Properties: Semitransparent. *Color:* Grayish yellow, gray, or pale brown; colorless in transmitted light; gray or brownish gray in reflected light. *Streak:* Yellowish gray.
Optical Class: Biaxial (+). $\alpha = 2.19$ $\beta = 2.23$ $\gamma = 2.35$ 2V(meas.) = $\sim 50°$
Anisotropism: Distinct.

Cell Data: *Space Group:* n.d. $a = 8.423$ $b = 13.739$ $c = 9.199$ Z = 12

X-ray Powder Pattern: Zhana-Tyube deposit, Kazakhstan.
3.17 (100), 3.099 (35), 3.21 (32), 2.980 (29), 2.857 (25), 2.725 (18), 2.102 (12)

Chemistry:

	(1)	(2)
SO_3	0.1	
TeO_2	42.0	41.69
SeO_2	0.1	
Bi_2O_3	0.6	
Sb_2O_3	0.1	
PbO	58.4	58.31
Total	101.3	100.00

(1) Zhana-Tyube deposit, Kazakhstan; by electron microprobe, average of three analyses; original elemental analysis here converted to oxides; corresponds to $(Pb_{1.01}Bi_{0.01})_{\Sigma=1.02}Te_{1.01}O_{2.96}$.
(2) $PbTeO_3$.

Polymorphism & Series: Dimorphous with fairbankite.

Occurrence: A secondary mineral, formed by alteration of altaite near the base of the oxidation zone of a tellurium-rich mineral deposit.

Association: Altaite.

Distribution: From the Zhana-Tyube Au–Te deposit, northern Kazakhstan.

Name: For lead, *plumbum*, and *tellurium* in the composition.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81598.

References: (1) Spiridonov, E.M. and O.I. Tananeyva (1982) Plumbotellurite, $\alpha-PbTeO_3$, a new mineral. Doklady Acad. Nauk SSSR, 262, 1231–1235 (in Russian). (2) (1982) Amer. Mineral., 67, 1075 (abs. ref. 1).