Prewittite $KPb_{1.5}Cu_6Zn(SeO_3)_2O_2Cl_{10}$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As tabular crystals, to 0.2 mm, flattened on (010) and displaying {010}, {001} and {101}.

Physical Properties: *Cleavage*: Perfect on {010} and {101}. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = 3.90(1) D(calc.) = 3.89

Optical Properties: Transparent. *Color*: Olive-green. *Streak*: Brownish green. *Luster*: Vitreous. *Optical Class*: Biaxial (-). α = n.d. β = n.d. γ = n.d. *n*(calc.) = 1.81 2V(meas.) = n.d. 2V(calc.) = n.d. *Pleochroism*: *X = n.d., Y* = olive-green, *Z* = red-brown. *Orientation*: *X = a*, *Y = c*, *Z = b*.

Cell Data: *Space Group*: *Pnnm*. *a* = 9.132(2) *b* = 19.415(4) *c* = 13.213(3) Z = 4

X-ray Powder Pattern: Great Tolbachik Fissure Eruption, Kamchatka Region, Russia. 3.660 (100), 4.111 (90), 8.26 (70), 7.53 (60), 2.887 (50), 2.996 (40), 2.642 (40)

Chemistry:	(1)	(2)
K_2O	1.76	3.28
PbO	21.18	23.30
CuO	33.24	33.21
ZnO	8.00	5.66
SeO_2	15.74	15.44
Cl	26.06	24.67
$-O=Cl_2$	5.88	5.56
Total	100.10	100.00

(1) Great Tolbachik Fissure Eruption, Kamchatka Region, Russia; average of 10 electron microprobe analyses supplemented by IR spectroscopy; corresponds to $K_{0.53}Pb_{1.33}Cu_{5.87}Zn_{1.38}Se_{1.99}O_{7.67}Cl_{10.33}$. (2) $KPb_{1.5}Cu_6Zn(SeO_3)_2O_2Cl_{10}$.

Occurrence: Formed by sublimation around a degassing volcanic fumarole.

Association: Melanothallite, chloromenite, sophiite.

Distribution: From fumarole “Melanotallitovaya”, second cinder cone of the northern breach of the Great Tolbachik Fissure Eruption, Kamchatka region, Russia.

Name: Honors Charles T. Prewitt (b. 1933) for his contributions to the crystal chemistry of minerals and planetary materials.

Type Material: Mining Museum, St. Petersburg Mining Institute, St. Petersburg, Russia (29/2002).

References: (1) Shuvalov, R.R., L.P. Vergasova, T.F. Semenova, S.K. Filatov, S.V. Krivovichev, O.I. Siidra, and N.S. Rudashevsky (2013) Prewittite, $KPb_{1.5}Cu_6Zn(SeO_3)_2O_2Cl_{10}$, a new mineral from Tolbachik fumaroles, Kamchatka peninsula, Russia: Description and crystal structure. Amer. Mineral., 98, 463-469.