Zoltaiite $BaV^{4+}_2V^{3+}_{12}Si_2O_{27}$

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$. As anhedral to semi-prismatic crystals to 200 μm.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Irregular. Hardness = 6-7
D(meas.) = n.d. D(calc.) = 4.83

Optical Properties: Opaque. *Color*: Black to steel gray; gray with a weak brownish tint in reflected light, no internal reflections. *Streak*: n.d. *Luster*: Submetallic to dull.
Optical Class: Weak anisotropy, bireflectance, and pleochroism.
R_1-R_2: (470) 15.87-16.83 $(4.53\text{-}5.29)_{oil}$, (546) 15.99-17.33 $(4.64\text{-}5.58)_{oil}$, (589) 15.93-17.41 $(4.62\text{-}5.59)_{oil}$, (650) 16.08-17.75 $(4.72\text{-}5.85)_{oil}$

Cell Data: *Space Group*: $P\bar{3}$. $a = 7.601(1)$ $c = 9.219(1)$ $Z = 1$

X-ray Powder Pattern: Wigwam Pb-Zn deposit, British Columbia, Canada.
2.190 (100), 2.934 (89), 3.103 (78), 2.785 (67), 1.438 (63), 1.934 (53), 2.403 (50)

Chemistry:

	(1)
Mg^{2+}	0.06
Al^{3+}	0.03
Si^{4+}	4.21
Ti^{4+}	4.55
V^{3+}	43.42
Cr^{3+}	1.30
Fe^{3+}	1.99
Ba^{2+}	10.45
O^{2-}	31.03
Total	97.04

(1) Wigwam Pb-Zn deposit, British Columbia, Canada; average electron microprobe analysis, valences from structure analysis, O^{2-} from stoichiometry, amount of oxygen and total are likely underestimated; corresponds to $Ba_{1.05}(Ti_{1.31}V^{4+}_{0.69})_{\Sigma=2.00}(V^{3+}_{11.06}Fe^{3+}_{0.49}Cr_{0.34})_{\Sigma=11.89}Si_{2.06}O_{27}$.

Mineral Group: Nesosubsilicate.

Occurrence: A metamorphic mineral formed under greenschist-facies P-T conditions.

Association: Quartz, celsian, apatite, sphalerite, pyrrhotite, galena, pyrite.

Distribution: From the Wigwam Pb-Zn deposit, Akolkolex River area, southeast of Revelstoke, British Columbia, Canada.

Name: Honors Tibor *Zoltai* (1925-2003) for contributions to mineralogical research and education.

Type Material: n.d.

References: (1) Bartholomew, P.R., F. Mancini, C. Cahill, G.E. Harlow, and H.-J. Bernhardt (2005) Zoltaiite, a new barium-vanadium nesosubsilicate mineral from British Columbia: Description and crystal structure. Amer. Mineral., 90, 1655-1660.