Thorikosite $Pb_3(Sb^{3+},As^{3+})O_3Cl_2(OH)$

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Crystals are extremely small prisms, tabular on {001}, composite and with curved faces.

Physical Properties: *Cleavage:* Perfect on {001}. *Tenacity:* Very brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 7.24

Optical Properties: Transparent to translucent. *Color:* Light yellow. *Luster:* Vitreous. *Optical Class:* Uniaxial. ω = n.d. ϵ = n.d.

Cell Data: *Space Group:* $I4/mmm$. $a = 3.919(1)$ $c = 12.854(5)$ $Z = 1$

X-ray Powder Pattern: Laurium, Greece; might be easily confounded with related natural and synthetic phases.
2.891 (10), 3.754 (7), 2.775 (5), 6.39 (3), 3.203 (3), 2.099 (3), 1.621 (3)

Chemistry:

	(1)
As_2O_3	4.4
Sb_2O_3	9.8
PbO	77.6
Cl	7.7
H_2O	[2.2]
$-O = Cl_2$	1.7
Total	[100.0]

(1) Laurium, Greece; by electron microprobe, H_2O by difference; corresponds to $Pb_{2.9}(Sb^{3+}_{0.6}As^{3+}_{0.4})_{\Sigma=1.0}Cl_{1.8}H_{2.0}O_{4.5}$.

Occurrence: A rare secondary mineral formed through alteration of lead-bearing slag by sea water.

Association: Paralaurionite, laurionite, hydrocerussite, sphalerite, calcite, aragonite.

Distribution: From Laurium, Greece, in slag.

Name: For *Thorikos*, an ancient town in Greece, where ores obtained from the nearby Laurium mines were smelted.

Type Material: National Museum of Natural History, Washington, D.C., USA, 161928, 149042.

References: (1) Dunn, P.J. and R.C. Rouse (1985) Freedite and thorikosite from Långban, Sweden, and Laurion, Greece: two new species related to the synthetic bismuth oxyhalides. Amer. Mineral., 70, 845–848. (2) Rouse, R.C. and P.J. Dunn (1985) The structure of thorikosite, a naturally occurring member of the bismuth oxyhalide group. J. Solid State Chem., 57, 389–395.