Hagstromite $Pb_8Cu^{2+}(Te^{6+}O_6)_2(CO_3)Cl_4$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As blades elongated along [001] and flattened on {100} to ~100 μm.

Physical Properties: Cleavage: Two directions, probably on {100} and {010}. *Tenacity*: Brittle. *Fracture*: Splintery. Hardness = 2-3 D(meas.) = n.d. D(calc.) = 7.038 Nonfluorescent.

Optical Properties: Transparent. *Color*: Light yellow-green. *Streak*: Very pale yellow-green. *Luster*: Adamantine to silky.
Optical Class: Biaxial (+). α(calc.) = 2.045 β(calc.) = 2.066 γ(calc.) = 2.102 2V(meas.) = 76(1)°
Orientation: $X = b$, $Y = a$, $Z = c$. Non-pleochroic.

Cell Data: *Space Group*: *Ibam*. a = 23.688(17) b = 9.026(8) c = 10.461(8) Z = 4

X-ray Powder Pattern: SW Cut, Otto Mountain, San Bernardino Co., California, USA.
2.967 (100), 3.927 (80), 2.601 (70), 1.964 (66), 3.286 (44), 3.423 (26), 2.230 (23)

Chemistry:

	(1)	(2)
PbO	73.43	75.34
CuO	3.17	3.36
TeO_3	14.00	14.82
CO_2	[2.10]	1.86
Cl	5.53	5.98
-O = Cl	1.25	1.35
Total	96.98	100.00

(1) SW Cut, Otto Mountain, San Bernardino Co., California, USA; average electron microprobe and Raman spectroscopic analyses, CO_2 calculated from stoichiometry; corresponds to $Pb_{8.07}Cu^{2+}_{0.98}Te^{6+}_{1.96}C_{1.17}Cl_{3.83}O_{15.34}$. (2) $Pb_8Cu^{2+}(Te^{6+}O_6)_2(CO_3)Cl_4$.

Occurrence: A secondary, oxidation zone mineral likely formed by oxidation of earlier tellurides, chalcopyrite, and galena.

Association: Cerussite, fuettererite, thorneite (holotype); caledonite, diaboleite, timroseite (cotype).

Distribution: From the SW Cut (holotype) and Bird Nest drift (cotype), Otto Mountain, 2.5 km west northwest of Baker, San Bernardino Co., California, USA.

Name: Honors John P. *Hagstrom* (b. 1953) of Las Vegas, Nevada, USA, a mineral collector who in recent years focused on deposits in the Goodsprings district, Nevada, and the Blue Bell mine and Otto Mountain near Baker, California. He has provided many of his collected specimens for scientific study, especially those from Otto Mountain, including for this work.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (73596 holotype and 73597 cotype).

References: (1) Kampf, A.R., R.M. Housley, S.J. Mills, G.R. Rossman, and J. Marty (2020) Hagstromite, $Pb_8Cu^{2+}(Te^{6+}O_6)_2(CO_3)Cl_4$, a new lead-tellurium oxysalt mineral from Otto Mountain, California, USA. Mineral. Mag., 84, 517-523.