## Andychristyite $PbCu^{2+}Te^{6+}O_5(H_2O)$

**Crystal Data**: Triclinic. *Point Group*: $\bar{1}$. As imperfect tablets flattened on {001}, to ~ 50 $\mu$m, in sub-parallel aggregates.

**Physical Properties**: *Cleavage*: Perfect on {001}. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = ~ 2-3 D(meas.) = n.d. D(calc.) = 6.304

**Optical Properties**: Transparent. *Color*: Bluish green. *Streak*: Very pale bluish green. *Luster*: Adamantine.
*Optical Class*: Biaxial. $n$ = [2.011 by Gladstone-Dale calculation.]
*Pleochroism*: Moderate, very pale blue-green to moderate blue-green. *Orientation*: One optic axis almost perpendicular to {001}. *Dispersion*: Strong.

**Cell Data**: *Space Group*: $P\bar{1}$. $a$ = 5.322(3) $b$ = 7.098(4) $c$ = 7.511(4) $\alpha$ = 83.486(7)° $\beta$ = 76.279(5)° $\gamma$ = 70.742(5)° Z = 2

**X-ray Powder Pattern**: Aga mine, Otto Mountain, San Bernardino County, California, USA. 3.274 (100), 2.641 (27), 2.434 (23), 1.5882 (21), 4.76 (17), 1.6736 (17), 6.71 (16)

| **Chemistry**: | (1) | (2) |
|---|---|---|
| PbO | 43.21 | 44.97 |
| CuO | 15.38 | 16.03 |
| $TeO_3$ | 35.29 | 35.38 |
| $H_2O$ | [3.49] | 3.63 |
| Total | 97.37 | 100.00 |

(1) Aga mine, Otto Mountain, San Bernardino County, California, USA; average of 5 electron microprobe analyses supplemented by Raman spectroscopy, $H_2O$ calculated; corresponds to $Pb_{0.98}Cu^{2+}_{0.98}Te^{6+}_{1.02}O_6H_{1.96}$. (2) $PbCu^{2+}Te^{6+}O_5(H_2O)$.

**Occurrence**: A secondary oxidation-zone mineral presumed to have formed by oxidation of primary sulfides and tellurides.

**Association**: Quartz, timroseite.

**Distribution**: From the dumps of the Aga mine, Otto Mountain, 1 mile northwest of Baker, San Bernardino County, California, USA.

**Name**: Honors Andrew (Andy) Gregor Christy (b. 1963), a Welsh-Australian mineralogist, petrologist, geochemist and solid-state chemist, for his contributions to mineralogy (new species described, work on the sapphirine, pyrochlore and hydrotalcite supergroups, and the crystal chemistry of tellurium).

**Type Material**: Natural History Museum of Los Angeles County, Los Angeles, California, USA (65577).

**References**: (1) Kampf, A.R., M.A. Cooper, S.J. Mills, R.M. Housley, and G.R. Rossman (2016) Lead-tellurium oxysalts from Otto Mountain near Baker, California, USA: XII. Andychristyite, $PbCu^{2+}Te^{6+}O_5(H_2O)$, a new mineral with *hcp* stair-step layers. Mineral. Mag., 80(6), 1055-1065. (2) (2017) Amer. Mineral., 102, 694 (abs. ref. 1).