

**Crystal Data:** Hexagonal. *Point Group:* 32. As hexagonal plates, to 0.08 mm, displaying  $\{10\bar{1}0\}$ ,  $\{01\bar{1}0\}$  and  $\{0001\}$ ; typically in rosettes, to 0.15 mm.

**Physical Properties:** *Cleavage:* Perfect on  $\{0001\}$ . *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = 2-3 D(meas.) = n.d. D(calc.) = 5.573

**Optical Properties:** Transparent to translucent. *Color:* Dark to pale blue-gray. *Streak:* Very pale bluish gray to white. *Luster:* Adamantine. *Optical Class:* Uniaxial (-).  $n > 1.80$   $n(\text{calc.}) = 1.878$  *Absorption:*  $O > E$ . *Pleochroism:*  $O$  = bluish gray,  $E$  = colorless.

**Cell Data:** *Space Group:*  $P312$ .  $a = 5.0441(7)$   $c = 9.4210(5)$   $Z = 1$

**X-ray Powder Pattern:** Grand Central Mine, Tombstone Hills, Cochise County, Arizona, USA. 3.193 (100), 4.363 (55), 2.521 (55), 1.555 (35), 1.978 (28), 1.715 (20), 2.187 (17)

<b>Chemistry:</b>	(1)
TeO <sub>3</sub>	24.05
Al <sub>2</sub> O <sub>3</sub>	7.07
PbO	63.74
S	1.15
Cl	2.28
$-\text{O} = \text{Cl}_2$	1.09
Total	97.20

(1) Grand Central Mine, Tombstone Hills, Cochise County, Arizona, USA; average of 3 electron microprobe analyses supplemented by Raman spectroscopy, valences determined from structure analysis; corresponding to  $\text{Pb}_{2.05}\text{Al}_{1.00}\text{Te}_{0.98}\text{O}_6(\text{Cl}_{0.46}\text{S}_{0.26})$ .

**Occurrence:** A secondary mineral in the oxidation zone of rocks containing Ag- and Au-bearing galena and minor amounts of copper and zinc minerals.

**Association:** Schieffelinite, oboyerite, rodalquilarite, cerussite, jarosite.

**Distribution:** From the Grand Central Mine, Contention-Grand Central mine group, Tombstone District, Tombstone Hills, Cochise County, Arizona, USA.

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**Type Material:** Royal Ontario Museum, Toronto, Canada (M56436), and the Natural History Museum of Los Angeles County, Los Angeles, California, USA (64499, 64500).

**References:** (1) Tait, K.T., V. Dicecco, N.A. Ball, F.C. Hawthorne, and A.R. Kampf (2014) Backite,  $\text{Pb}_2\text{Al}(\text{TeO}_6)\text{Cl}$ , a new tellurate mineral from the Grand Central Mine, Tombstone Hills, Cochise County, Arizona: description and crystal structure. *Can. Mineral.*, 52(6), 935-942. (2) (2016) *Amer. Mineral.*, 101, 1489 (abs. ref. 1).