**Backite**  \( \text{Pb}_2\text{Al(TeO}_6\text{)Cl} \)

**Crystal Data:** Hexagonal.  **Point Group:** 32.  As hexagonal plates, to 0.08 mm, displaying \{10\(\overline{1}\) 0\}, \{01\(\overline{1}\) 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:**  **Cleavage:** Transparent to translucent.  **Color:** Dark to pale blue-gray.  
**Fracture:** Very pale bluish gray to white.  **Tenacity:** Brittle.  
**Streak:** Colorless.  
**Luster:** Adamantine.  
**Optical Class:** Uniaxial (-).  
**n:** 1.80  
**n(calc.) = 1.878**  
**Absorption:** O > E.

**Pleochroism:** O = bluish gray, E = colorless.

**Cell Data:** Space Group: P\(3\overline{1}\)2.  \(a = 5.0441(7)\)  
\(c = 9.4210(5)\)  
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)

**Chemistry:**  
(1) \begin{align*}
\text{TeO}_3 & \quad 24.05 \\
\text{Al}_2\text{O}_3 & \quad 7.07 \\
\text{PbO} & \quad 63.74 \\
\text{S} & \quad 1.15 \\
\text{Cl} & \quad 2.28 \\
\text{O = Cl}_2 & \quad 1.09 \\
\text{Total} & \quad 97.20
\end{align*}

(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 \(\text{Pb}_{2.05}\text{Al}_{1.00}\text{Te}_{0.98}\text{O}_6(\text{Cl}_{0.46}\text{S}_{0.54})\).

**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.

**Name:** Honors Malcolm A. Back (b. 1951), Department of Natural History (Mineralogy), Royal Ontario Museum, Toronto, Canada.

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

**References:**  