

## Peisleyite



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**Crystal Data:** Monoclinic. *Point Group:* n.d. Flakes, to 2  $\mu\text{m}$ , aggregated into chalky masses.

**Physical Properties:** *Tenacity:* Brittle. Hardness =  $\sim 3$   $D(\text{meas.}) = 2.12$   $D(\text{calc.}) = 2.11$

**Optical Properties:** Semitransparent. *Color:* White. *Luster:* Earthy.  
*Optical Class:* Biaxial.  $n = 1.510$   $2V(\text{meas.}) = \text{n.d.}$

**Cell Data:** *Space Group:* n.d.  $a = 13.31(0.6)$   $b = 12.62(0.6)$   $c = 23.15(1)$   
 $\beta = 110.0(0.3)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Tom's quarry, Australia.  
12.63 (100), 7.82 (35), 5.41 (35), 7.59 (30), 4.35 (20), 10.85 (15), 6.43 (15)

|                   |                                      |
|-------------------|--------------------------------------|
| <b>Chemistry:</b> | (1)                                  |
|                   | SO <sub>3</sub> 7.33                 |
|                   | P <sub>2</sub> O <sub>5</sub> 29.10  |
|                   | SiO <sub>2</sub> 0.83                |
|                   | Al <sub>2</sub> O <sub>3</sub> 35.03 |
|                   | Fe <sub>2</sub> O <sub>3</sub> 0.17  |
|                   | MgO 0.02                             |
|                   | CaO 0.71                             |
|                   | Na <sub>2</sub> O 3.83               |
|                   | K <sub>2</sub> O 0.03                |
|                   | H <sub>2</sub> O 22.54               |
|                   | <hr/>                                |
|                   | Total 99.59                          |

(1) Tom's quarry, Australia; Fe, Mg, Ca, Na, K by AA, H<sub>2</sub>O by loss on ignition, original total given as 99.60%; corresponds to  $(\text{Na}_{2.88}\text{Ca}_{0.30}\text{Mg}_{0.01}\text{K}_{0.01})_{\Sigma=3.20}(\text{Al}_{16.00}\text{Fe}_{0.05})_{\Sigma=16.05}(\text{PO}_4)_{9.55}(\text{SiO}_4)_{0.32}(\text{SO}_4)_{2.13}(\text{OH})_{17.45} \cdot 20.40\text{H}_2\text{O}$ .

**Occurrence:** A rare secondary mineral in phosphate beds in limestone.

**Association:** Wavellite.

**Distribution:** From Tom's Phosphate quarry, near Kapunda, South Australia.

**Name:** Honoring Mr. Vincent Peisley (1941–), Brahma Lodge, Australia, who first collected the species.

**Type Material:** Museum Victoria, Melbourne, Australia, M35630.

**References:** (1) Pilkington, E.S., E.R. Segnit, and J.A. Watts (1982) Peisleyite, a new sodium aluminium sulphate phosphate. *Mineral. Mag.*, 46, 449–452. (2) (1983) *Amer. Mineral.*, 68, 849–850 (abs. ref. 1).