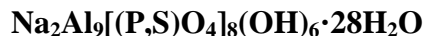


Peisleyite**Crystal Data:** Triclinic. *Point Group:* $\bar{1}$. As flakes, to 2 μm , aggregated into chalky masses.**Physical Properties:** *Tenacity:* Brittle. Hardness = ~ 3 D(meas.) = 2.20(5) D(calc.) = 2.23**Optical Properties:** Semitransparent. *Color:* White. *Luster:* Earthy.
Optical Class: Biaxial. $n = 1.510$ 2V(meas.) = n.d.**Cell Data:** *Space Group:* $P\bar{1}$. $a = 9.280(19)$ $b = 11.976(19)$ $c = 13.250(18)$ $\alpha = 91.3(1)^\circ$
 $\beta = 75.6(1)^\circ$ $\gamma = 67.67(1)^\circ$ $Z = 4$ **Powder Patterns:** 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) [X-ray]

12.662 (100), 10.985 (63), 7.837 (38), 7.678 (35), 5.459 (29), 43.90 (28) 8.021 (20) [Synchrotron]

Chemistry:	(1)
SO ₃	6.24
P ₂ O ₅	25.20
SiO ₂	0.85
Al ₂ O ₃	26.06
Fe ₂ O ₃	0.13
MgO	0.00
CaO	0.56
Na ₂ O	2.97
K ₂ O	0.01
<u>H₂O</u>	<u>31.67</u>
Total	93.68

(1) Tom's quarry, Australia; average of 12 electron microprobe analyses, H₂O by thermal analysis; corresponds to (Na_{1.69}Ca_{0.18}) $\Sigma=1.87$ (Al_{9.04}Fe_{0.03}) $\Sigma=9.07$ [(P_{6.28}S_{1.38}Si_{0.25})O₄] $\Sigma=7.91$ (OH)_{6.66} · 27.73 H₂O.**Occurrence:** A rare secondary mineral in phosphate beds in limestone.**Association:** F-rich wavellite.**Distribution:** From Tom's Phosphate quarry, near Kapunda, Mount Lofty Ranges, South Australia.**Name:** Honoring Mr. Vincent Peisley (b. 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). (3) S. Mills, C. Ma, and W.D. Birch (2011) A contribution to understanding the complex nature of peisleyite. *Mineral. Mag.*, 75(6), 2733-2737. (4) (2012) *Amer. Mineral.*, 97, 2071 (abs. ref. 3)