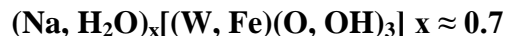


Pittongite

Crystal Data: Hexagonal. *Point Group:* $\bar{6} m2$. As thin curved plates with ragged outlines, to 0.5 μm ; in aggregates, to 2 mm; as compact masses.

Physical Properties: *Cleavage:* None observed. *Fracture:* n.d. *Tenacity:* n.d.
Hardness = 2-3 D(meas.) = > 4.4 D(calc.) = 5.715

Optical Properties: Transparent. *Color:* Cream yellow. *Streak:* Cream.
Luster: Pearly to earthy.
Optical Class: Uniaxial (-). $n = 2.085$

Cell Data: *Space Group:* $P\bar{6} m2$. $a = 7.286(1)$ $c = 50.49(1)$ $Z = 36$

X-ray Powder Pattern: New England District, Victoria, Australia.
3.153(100), 3.111(91), 1.823(76), 1.578(64), 3.306(62), 2.450(59), 5.956(52)

| Chemistry: | (1) |
|--------------------------------|-------------|
| Na ₂ O | 2.97 |
| K ₂ O | 0.06 |
| CaO | 0.39 |
| Fe ₂ O ₃ | 5.66 |
| Al ₂ O ₃ | 0.51 |
| WO ₃ | 84.15 |
| <u>H₂O</u> | <u>4.73</u> |
| Total | 98.47 |

(1) New England District, Victoria, Australia, average of electron microprobe and CHN analyses, corresponding to $(\text{Na}_{0.22}\text{H}_2\text{O}_{0.44}\text{Ca}_{0.02}\text{K}_{0.003})_{\Sigma=0.683}(\text{W}_{0.82}\text{Fe}^{3+}_{0.16}\text{Al}_{0.02})_{\Sigma=1.00}[\text{O}_{2.70}(\text{OH})_{0.30}]_{\Sigma=3.00}$.

Occurrence: Formed by weathering ferberite in hydrothermal quartz veins associated with granite by chemical reaction with acidic, oxidizing solutions containing sodium.

Association: Ferberite, quartz, bismuth, gold, bismuthinite, koechlinite, elsmoreite.

Distribution: From mine dumps near the main shaft of a tungsten deposit (Bass and Watson's) 6 km west of Linton (near Ballarat), New England District, Victoria, Australia.

Name: For a former village near the deposit, *Pittong* (an Australian indigenous word for *father*).

Type Material: Museum Victoria, Melbourne, Australia (M48268).

References: (1) Birch, W.D., I.E. Grey, S.J. Mills, C. Bougerol, A. Pring, and S. Ansermet (2007) Pittongite, a new tungstate with a mixed-layer, pyrochlore-hexagonal tungsten bronze structure, from Victoria, Australia. *Can. Mineral.*, 45, 857-864. (2) (2008) *Amer. Mineral.*, 93, 704 (abs. ref. 2).