

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Crystals, typically equant to tabular {010}, elongated along [001], with {001}, {010}, {100}, {021}, {111}, to 1 mm, and in subparallel [001] druses.

**Physical Properties:** *Cleavage:* On {010} and {100}, fair. *Fracture:* Conchoidal. Hardness = 4–4.5 D(meas.) = 2.752 D(calc.) = 2.724

**Optical Properties:** Transparent. *Color:* Colorless to pale pink; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous.

*Optical Class:* Biaxial (-). *Orientation:*  $X = c; Y = z; Z = a$ . *Dispersion:*  $r < v$ , weak.  $\alpha = 1.541(2)$   $\beta = 1.563(2)$   $\gamma = 1.564(2)$   $2V(\text{meas.}) = 23(2)^\circ$   $2V(\text{calc.}) = 24^\circ$

**Cell Data:** *Space Group:*  $Pbc$ .  $a = 6.948(2)$   $b = 14.089(4)$   $c = 14.065(3)$   $Z = 8$

**X-ray Powder Pattern:** Tanco mine, Canada.

4.672 (100), 3.150 (100), 3.413 (90), 2.479 (90), 1.760 (40), 1.438 (40), 1.429 (40)

Chemistry:	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	50.1	49.31
Al <sub>2</sub> O <sub>3</sub>	18.3	17.71
CaO	0.5	
Li <sub>2</sub> O	5.2	5.19
Na <sub>2</sub> O	20.0	21.53
H <sub>2</sub> O	6.8	6.26
Total	100.9	100.00

(1) Tanco mine, Canada; Li by AA, H<sub>2</sub>O by DTA-TGA-EGA analysis, presence of (OH)<sup>1-</sup> and absence of H<sub>2</sub>O confirmed by IR; corresponds to H<sub>1.13</sub>Na<sub>1.82</sub>Li<sub>0.98</sub>Ca<sub>0.03</sub>Al<sub>1.01</sub>(P<sub>1.00</sub>O<sub>4</sub>)<sub>2</sub>(OH).

(2) HNa<sub>2</sub>LiAl(PO<sub>4</sub>)<sub>2</sub>(OH).

**Occurrence:** In cavities in dump material from a complex granite pegmatite.

**Association:** Lithiophosphate, apatite, spodumene, cookeite, barite, calcite, quartz.

**Distribution:** From the Tanco mine, Bernic Lake, Manitoba, Canada.

**Name:** For the Tanco mine, Canada, its original locality.

**Type Material:** University of Manitoba, Winnipeg, Manitoba, M5533, M5534; Royal Ontario Museum, Toronto, M36416–8; Canadian Museum of Nature, Ottawa, Canada, 42900; The Natural History Museum, London, England, 1980,52; National School of Mines, Paris, France; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia; 1980,52; Harvard University, Cambridge, Massachusetts, 117129; National Museum of Natural History, Washington, D.C., USA, 146284, 146893.

**References:** (1) Ramik, R.A., B.D. Sturman, P.J. Dunn, and A.S. Povarennykh (1980) Tancoite, a new lithium sodium aluminum phosphate from the Tanco pegmatite, Bernic Lake, Manitoba. *Can. Mineral.*, 18, 185–190. (2) (1981) *Amer. Mineral.*, 66, 1278 (abs. ref. 1). (3) Hawthorne, F.C. (1983) The crystal structure of tancoite. *Tschermaks Mineral. Petrog. Mitt.*, 31, 121–135.