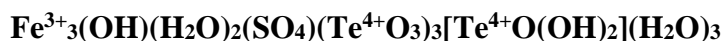


Tamboite

Crystal Data: Monoclinic. *Point Group:* 2/m. As clusters to 3 mm of radiating fiber bundles to 1 mm. Fiber bundles twist and merge near their ends, forming simple prisms flattened on (100) and elongated along [010] with terminal crystal faces.

Physical Properties: *Cleavage:* n.d. *Tenacity:* Brittle. *Fracture:* Splintery. Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 3.648$ Nonfluorescent. Transforms to metatamboite reversibly with changes in ambient humidity. Visually indistinguishable from metatamboite.

Optical Properties: Semi-translucent. *Color:* Pale yellow. *Streak:* Very pale yellow to colorless. *Luster:* Greasy to vitreous. *Pleochroism:* Colorless to pale yellow. *Optical Class:* Biaxial. $n(\text{calc.}) = 1.874$

Cell Data: *Space Group:* $P2_1/c$. $a = 16.879(10)$ $b = 7.310(4)$ $c = 16.666(9)$ $\beta = 108.857(11)^\circ$ $Z = 4$

X-Ray Diffraction Pattern: Calculated pattern.

16.068 (100), 3.425 (9), 2.999 (8), 3.171 (6), 2.853 (5), 4.153 (4), 3.943 (4)

| Chemistry: | (1) | (2) |
|--------------------------------|---------|--------|
| TeO ₂ | 63.90 | 59.38 |
| Fe ₂ O ₃ | [24.14] | 22.28 |
| Al ₂ O ₃ | 0.75 | |
| SO ₃ | 5.84 | 7.45 |
| SeO ₃ | 0.63 | |
| H ₂ O | [11.41] | 10.89 |
| Total | 106.67 | 100.00 |

(1) Tambo mine, Coquimbo Province, Chile; average electron microprobe analysis supplemented by IR spectroscopy, Fe₂O₃ and H₂O calculated from structure; cations correspond to $(\text{Fe}^{3+}_{3.10}\text{Al}_{0.15})_{\Sigma=3.25}(\text{S}^{6+}_{0.75}\text{Se}^{6+}_{0.05})_{\Sigma=0.80}\text{Te}^{4+}_{4.11}$. (2) $\text{Fe}^{3+}_3(\text{OH})(\text{H}_2\text{O})_2(\text{SO}_4)(\text{Te}^{4+}\text{O}_3)_3[\text{Te}^{4+}\text{O}(\text{OH})_2](\text{H}_2\text{O})_3$.

Occurrence: In the interstices of silicified epithermal hydrothermal breccias of dacitic tuff.

Association: Alunite, rodalquilarite, emmonsite, poughite, mackayite, scorodite, paratellurite, tellurite, baryte, gold, native tellurium.

Distribution From the Tambo mine (Windy pit), Coquimbo Province, Chile.

Name: For the *Tambo* mine, where the studied material was collected.

Type Material: Royal Ontario Museum, Toronto, Canada (M57171).

References: (1) Cooper, M.A., F.C. Hawthorne, Y.A. Abdu, P.C. Walford, and M.E. Back (2019) Relative humidity as a driver of structural change in three new ferric-sulfate-tellurite hydrates: New minerals tamboite and metatamboite, and a lower-hydrate derivative, possibly involving direct uptake of atmospheric {H₂O}₄ clusters. *Can. Mineral.*, 57, 605-635.