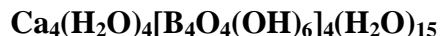


Alfredstelznerite

Crystal Data: Orthorhombic. *Point Group:* $mm2$. Crystals, acicular elongated along [001], to 5 mm; form {010} dominant, with {h k 0}, {100}, {h k 1}, $\{\bar{h} k 1\}$; as sprays of acicular crystals.

Physical Properties: *Cleavage:* Perfect on {010}. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = 2 D(meas.) = 1.77(1) D(calc.) = 1.775

Optical Properties: Transparent, translucent on dehydration. *Color:* Colorless; white in aggregates. *Streak:* White. *Luster:* Vitreous; silky in aggregates. *Optical Class:* Biaxial (+). $\alpha = 1.476(3)$ $\beta = 1.478(3)$ $\gamma = 1.494(3)$ $2V(\text{calc}) = 39^\circ$ *Orientation:* X = b; Y = c; Z = a.

Cell Data: *Space Group:* $Pca2_1$. $a = 12.161(2)$ $b = 40.477(8)$ $c = 10.1843(17)$ $Z = 4$

X-ray Powder Pattern: Santa Rosa Mine, Sijes, Salta Province, Argentina. 10.501 (100), 5.226 (70), 3.837 (70), 3.118 (70 broad), 4.623 (60 broad), 2.612 (60), 2.538 (60)

Chemistry:	(1)	(2)
B ₂ O ₃	50.8	41.57
CaO	20.9	16.74
H ₂ O	51.1	41.69
Total	122.8	100.00

(1) Santa Rosa Mine, Sijes, Salta Province, Argentina; electron microprobe analyses, H₂O from structure analysis and IR spectrum, corresponding to Ca_{4.07}(H₂O)₄[B_{3.99}O₄(OH)₆]₄(H₂O)₁₅.

(2) Ca₄(H₂O)₄[B₄O₄(OH)₆]₄(H₂O)₁₅.

Occurrence: A secondary mineral in a cavity in fractured mudstone in a playa-hosted borate deposit.

Association: Colemanite, hydroboracite, ulexite, inyoite, gypsum, anhydrite.

Distribution: Santa Rosa Mine, Sijes, Salta Province, Argentina.

Name: Honors Dr. Alfred Wilhelm Stelzner (1840–1895), first professor of geology at the University of Córdoba and founder of the Mineralogical Museum.

Type Material: Facultad de Ciencias Exactas Físicas y Naturales, Universidad Nacional de Córdoba, Argentina (catalog no. MS003266).

References: (1) Galliski, M.A., M.A. Cooper, M.F. Márquez-Zavalía, and F.C. Hawthorne (2010) Alfredstelznerite: a new species of calcium borate hydrate from the Santa Rosa Mine, Salta, northwestern Argentina. *Can. Mineral.*, 48, 123–128. (2) Cooper, M.A., F.C. Hawthorne, M.A. Galliski, and M.F. Márquez-Zavalía (2010) The crystal structure of alfredstelznerite, Ca₄(H₂O)₄[B₄O₄(OH)₆]₄(H₂O)₁₅, a complex hydroxy-hydrated calcium borate mineral. *Can. Mineral.*, 48, 129–138. (3) (2010) *Amer. Mineral.*, 95, 1194–1595 (abs. refs. 1 and 2).