Sanjuanite $Al_2(PO_4)(SO_4)(OH)\cdot 9H_2O$

Crystal Data: Triclinic (?). *Point Group:* n.d. Microscopic laths, parallel to divergent, fibrous, in chalklike aggregates.

Physical Properties: *Fracture:* Uneven to earthy. Hardness = 3 D(meas.) = 1.94 D(calc.) = 1.96

Optical Properties: Semitransparent. *Color:* White; colorless in transmitted light. *Luster:* Dull to silky.
Optical Class: Biaxial. *Orientation:* Positive elongation, extinction ∼25°–30°. $\alpha = 1.484$ (α') ⊥ length. β = n.d. $\gamma = 1.499$ (γ') ∥ length. 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 11.314(11)$ $b = 9.018(9)$ $c = 7.376(7)$ $\alpha = 93°4.17(6.01)'$ $\beta = 95°46.49(4.17)'$ $\gamma = 105°39.77(4.42)'$ Z = 2

X-ray Powder Pattern: Sierra Chica de Zonda, Argentina.
10.77 (100), 4.13 (55), 5.28 (38), 4.32 (36), 3.450 (35), 8.66 (30), 4.27 (30)

Chemistry:

	(1)	(2)
SO_3	18.62	18.88
P_2O_5	16.39	16.73
Al_2O_3	23.48	24.04
Fe_2O_3	1.72	
H_2O	40.20	40.35
Total	100.41	100.00

(1) Sierra Chica de Zonda, Argentina; corresponds to $Al_{2.00}Fe_{0.10}(PO_4)_{1.00}(SO_4)_{1.01}(OH)\cdot 8.71H_2O$. (2) $Al_2(PO_4)(SO_4)(OH)\cdot 9H_2O$.

Occurrence: In mineralized joint fractures cutting slate.

Association: Gypsum, natrojarosite, iron oxides.

Distribution: On a ridge of the eastern slope of Sierra Chica de Zonda, about 45 km south-southwest from San Juan, San Juan Province, Argentina.

Name: For San Juan Province, Argentina, in which the mineral was first found.

Type Material: National Museum of Natural History, Washington, D.C., USA, 149522.

References: (1) de Abeledo, M.E.J., V. Angelelli, M.A.R. de Benyacar, and C. Gordillo (1968) Sanjuanite, a new hydrated basic sulfate-phosphate of aluminum. Amer. Mineral., 53, 1–8.
(2) de Bruiyn, H., G.J. Beukes, W.A. Van der Westhuizen, and E.A.W. Tordiffe (1989) Unit cell dimensions of the hydrated aluminum phosphate-sulphate minerals sanjuanite, kribergite, and hotsonite. Mineral. Mag., 53, 385–386.