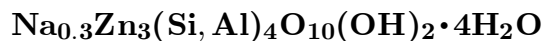


Sauconite

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Crystal Data: Monoclinic. *Point Group:* n.d. Clayey, massive; as small micaceous plates in laminated to compact masses.**Physical Properties:** *Cleavage:* {001}, perfect. Hardness = 1–2 D(meas.) = n.d. D(calc.) = n.d. Positive identification of minerals in the smectite group may need data from DTA curves, dehydration curves, and X-ray powder patterns before and after treatment by heating and with organic liquids.**Optical Properties:** Translucent. *Color:* Reddish brown, brown, brownish yellow, mottled. *Luster:* Dull.*Optical Class:* Biaxial (-). *Orientation:* $Y = b$. $\alpha = 1.55\text{--}1.58$ $\beta = 1.59\text{--}1.62$ $\gamma = 1.59\text{--}1.62$ $2V(\text{meas.}) = 0^\circ\text{--}20^\circ$ **Cell Data:** *Space Group:* n.d. $a = 5.2$ $b = 9.1$ $c = 15.4$ $\beta = \text{n.d.}$ $Z = \text{n.d.}$ **X-ray Powder Pattern:** Coon Hollow mine, Arkansas, USA; air dried sample. 15.4 (100), 2.67 (100), 1.544 (100), 7.77 (90), 4.60 (90), 1.334 (75), 5.58 (50b)**Chemistry:**

	(1)	(2)
SiO ₂	34.46	33.40
TiO ₂	0.24	0.15
Al ₂ O ₃	16.95	7.45
Fe ₂ O ₃	6.21	1.73
MnO		trace
CuO		0.13
ZnO	23.10	36.73
MgO	1.11	0.78
CaO		1.92
Na ₂ O		0.22
K ₂ O	0.49	0.27
H ₂ O ⁺	10.67	7.14
H ₂ O ⁻	6.72	9.78
Total	99.95	99.70

(1) Friedensville, Pennsylvania, USA. (2) Coon Hollow mine, Arkansas, USA.

Mineral Group: Smectite group.**Occurrence:** Fills vugs and seams in oxidized zinc and copper deposits; may be redeposited at the water table.**Association:** Hemimorphite, smithsonite, chrysocolla, coronadite, iron oxides.**Distribution:** In the USA, from the Ueberroth mine, Saucon Valley, near Friedensville, Lehigh Co., Pennsylvania; the Coon Hollow mine, north of Zinc, Boone Co., Arkansas; and the Liberty mine, Meekers Grove, Lafayette Co., Wisconsin. In Arizona, at Castle Dome, Globe-Miami district, and the 79 mine, Gila Co., and from the Magma mine, Superior, Pinal Co.; and in Colorado, from the New Discovery and Yankee Doodle mines, Leadville, Lake Co. At Moresnet, Liège, Belgium. From the Lovozero massif, Kola Peninsula, and a number of other poorly defined Russian localities.**Name:** For its occurrence in the Saucon Valley, Pennsylvania, USA.**References:** (1) Dana, E.S. (1868) Dana's system of mineralogy (5th edition), 409. (2) Ross, C.S. (1946) Sauconite – a clay mineral of the montmorillonite group. *Amer. Mineral.*, 31, 411–424. (3) Faust, G.T. (1951) Thermal analysis and X-ray studies of sauconite and of some zinc minerals of the same paragenetic association. *Amer. Mineral.*, 36, 795–822. (4) Deer, W.A., R.A. Howie, and J. Zussman (1963) *Rock-forming minerals*, v. 3, sheet silicates, 226–245.

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