

Stevensite



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Crystal Data: [Monoclinic] (by analogy to the smectite group). *Point Group:* n.d.
Aggregates of plates, to 1 μm ; massive.

Physical Properties: Hardness = 2.5 D(meas.) = 2.15–2.56 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:* Pink, buff, amber, white, gray, brown. *Luster:* Dull to resinous.

Optical Class: n.d.

Cell Data: *Space Group:* n.d. $Z = \text{n.d.}$

X-ray Powder Pattern: Springfield, New Jersey, USA; very close to saponite.
12.5–13.0 (10), 2.55 (10), 4.54 (6), 1.520 (4), 3.17–3.20 (3), 26.5 (2)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
SiO ₂	57.30	51.38	61.99	CaO	0.97	0.73	2.17
TiO ₂		0.02		Na ₂ O	0.03	0.59	
Al ₂ O ₃	0.00	0.04		K ₂ O	0.03	0.18	
Fe ₂ O ₃	0.32	1.29		F	0.00		
FeO	0.00			H ₂ O ⁺	7.17	[21.85]	4.65
MnO	0.21			H ₂ O ⁻	6.69		
MgO	27.47	23.92	31.19	Total	100.19	[100.00]	100.00

(1) Springfield, New Jersey, USA. (2) Prócida Island, Italy; by electron microprobe, H₂O by difference; corresponds to (Na_{0.09}Ca_{0.06}K_{0.02})_{Σ=0.17}(Mg_{2.77}Fe_{0.08}³⁺)_{Σ=2.85}Si₄O₁₀(OH)₂.
(3) (Ca/2)_{0.3}Mg₃Si₄O₁₀(OH)₂.

Mineral Group: Smectite group.

Occurrence: In cavities in basalt, formed by late-stage hydrothermal replacement of pectolite. A hydrothermal alteration product of igneous rocks, as dunite and tuff. May form authigenically, interstratified with other species.

Association: Quartz, talc, pectolite.

Distribution: In the USA, in New Jersey, from Bergen Hill, Hudson Co., Springfield, Essex Co., Paterson, Passaic Co., and elsewhere; at Mine Creek, Bakersville, Mitchell Co., North Carolina. On Prócida Island, Italy. From Corstorphine Hill, Edinburgh, Scotland. In the Ohiri mine, Yamagata Prefecture, and the Akatani mine, Niigata Prefecture, Japan. Probably occurs at additional localities but modern confirmation required.

Name: For E.A. Stevens, founder, Stevens Institute of Technology, Hoboken, New Jersey, USA.

Type Material: National Museum of Natural History, Washington, D.C., USA, R4719.

References: (1) Dana, E.S. (1899) Dana's system of mineralogy, (6th edition), app. I, 64, 66 [talc]. (2) Faust, G.T. and K.J. Murata (1953) Stevensite, redefined as a member of the montmorillonite group. *Amer. Mineral.*, 38, 973–987. (3) Faust G.T., J.C. Hathaway, and G. Millot (1959). A restudy of stevensite and allied minerals. *Amer. Mineral.*, 44, 342–370. (4) Leoni, L. and F. Sartori (1983) Stevensite pseudomorphous after periclase. *Neues Jahrb. Mineral., Monatsh.*, 556–562.

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