Foshagite $Ca_4Si_3O_9(OH)_2$

Crystal Data: Monoclinic. *Point Group:* $2/m$, 2, or m. Crystals elongated along [010], to 5 cm; fibrous and in compact masses.

Physical Properties: *Cleavage:* Distinct on {001}. *Tenacity:* Brittle. Hardness = 3 when massive. D(meas.) = 2.73 D(calc.) = 2.74

Optical Properties: Translucent. *Color:* White; colorless in thin section. *Luster:* Silky. *Optical Class:* Biaxial (+). *Orientation:* Positive elongation, parallel extinction. $\alpha = 1.594$ $\beta = 1.594$ $\gamma = 1.598$ 2V(meas.) = $\sim 60°$

Cell Data: *Space Group:* A-centered. $a = 10.32$ $b = 7.36$ $c = 14.07$ $\beta = 106.4°$ Z = 4

X-ray Powder Pattern: Crestmore, California, USA.
2.92 (vvs), 1.74 (vs,b), 6.8 (ms), 4.95 (ms), 3.37 (ms), 2.30 (ms), 2.16 (ms)

Chemistry:

	(1)	(2)
SiO_2	36.60	42.66
$(Al,Fe)_2O_3$	0.50	
MgO	2.61	
CaO	48.91	53.08
H_2O	8.88	4.26
CO_2	2.67	
Total	100.17	100.00

(1) Crestmore, California, USA. (2) $Ca_4Si_3O_9(OH)_2$.

Occurrence: In thin veins in thermally altered limestone (Crestmore, California, USA; Kilchoan, Scotland) or melilite skarn (Dupezeh Mountain, Iraq).

Association: Hillebrandite, calcite, vesuvianite, garnet, thaumasite (Crestmore, California, USA); merwinite, larnite, kilchoanite (Kilchoan, Scotland); perovskite, grossular, schorlomite, monticellite, wollastonite, phlogopite, spinel, cuspidine, baddeleyite, baghdadite, pyrrhotite, djerfisherite, valleriite (Dupezeh Mountain, Iraq).

Distribution: In the USA, at Crestmore, Riverside Co., California. From near Kilchoan, Ardnamurchan, Argyllshire, Scotland. On Dupezeh Mountain, near Hero Town, Qala-Diza region, Iraq. From the Hatrurim Formation, Israel. At Kushiro, Hiroshima Prefecture, and in the Akagané mine, Iwate Prefecture, Japan. In the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: For William Frederick Foshag (1894–1956), Curator of the Smithsonian mineral collections, Washington, D.C., USA, who studied Crestmore minerals.

Type Material: National Museum of Natural History, Washington, D.C., USA, 95229.

References: (1) Eakle, A.S. (1925) Foshagite, a new silicate from Crestmore, California. Amer. Mineral., 10, 97–99. (2) Heller, L. and H.F.W. Taylor (1956) Crystallographic data for the calcium silicates. H.M. Stationary Office, London, 53–56. (3) Gard, J.A. and H.F.W. Taylor (1958) Foshagite: Composition, unit cell and dehydration. Amer. Mineral., 43, 1–15. (4) Gard, J.A. and H.F.W. Taylor (1960) The crystal structure of foshagite. Acta Cryst., 13, 785–793.