Foshagite  

\[ \text{Ca}_4\text{Si}_3\text{O}_9(\text{OH})_2 \]

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.  
\(D(\text{meas.}) = 2.73\)  
\(D(\text{calc.}) = 2.74\)

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

Cell Data:  
Space Group: A-centered.  
\(a = 10.32\)  
\(b = 7.36\)  
\(c = 14.07\)  
\(\beta = 106.4^\circ\)  
\(Z = 4\)

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)  
\begin{align*}
\text{SiO}_2 &\quad 36.60 &\quad 42.66 \\
(\text{Al, Fe})_2\text{O}_3 &\quad 0.50 \\
\text{MgO} &\quad 2.61 \\
\text{CaO} &\quad 48.91 &\quad 53.08 \\
\text{H}_2\text{O} &\quad 8.88 &\quad 4.26 \\
\text{CO}_2 &\quad 2.67 \\
\text{Total} &\quad 100.17 &\quad 100.00
\end{align*}

(1) Crestmore, California, USA.  
(2) \(\text{Ca}_4\text{Si}_3\text{O}_9(\text{OH})_2\).

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

Association:  
Hillebrandite, calcite, vesuvianite, garnet, thaumasite (Crestmore, California, USA); merwinite, larnite, kilchoanite (Kilchoan, Scotland); perovskite, grossular, schorlomite, munticellite, wollastonite, phlogopite, spinel, cuspidine, baddeleyite, pyrrhotite, djerfishtite, valeritite (Dupezh Mountain, Iraq).

Distribution:  
In the USA, at Crestmore, Riverside Co., California. From near Kilchoan, Ardnamurchan, Argyllshire, Scotland. On Dupezh 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:  

References:  
(1) Eakle, A.S. (1925) Foshagite, a new silicate from Crestmore, California.  
Acta Cryst., 13, 785–793.