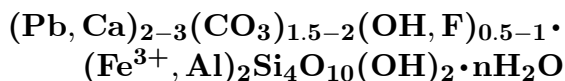


Ferrisurite

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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* 2 or 2/m. As crystals, flattened on {010}, tapering to fibrous, elongated || [100]; in compact radial aggregates, to 2 mm.

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* Very flexible. Hardness = 2–2.5 D(meas.) = 4.0(1) D(calc.) = 3.89

Optical Properties: Transparent to translucent. *Color:* Forest-green to light yellow-green. *Streak:* Greenish yellow to olive-green. *Luster:* Silky. *Optical Class:* Biaxial (+). *Pleochroism:* X = yellow; Y = brown; Z = light green. *Orientation:* X = c; Y = b; Z = a. $\alpha = 1.757(3)$ $\beta = 1.763(3)$ $\gamma = 1.773(3)$ 2V(meas.) = n.d. 2V(calc.) = 76°

Cell Data: *Space Group:* $P2_1$ or $P2_1/m$. $a = 5.241(1)$ $b = 9.076(5)$ $c = 16.23(1)$ $\beta = 90.03(7)^\circ$ $Z = 2$

X-ray Powder Pattern: Shirley Ann claim, California, USA. 4.53 (100), 3.240 (90), 2.612 (80), 2.272 (50), 16.1 (40), 3.727 (35), 5.40 (25), 1.715 (25)

Chemistry:	(1)		(1)	
	SiO ₂	26.6	BaO	0.1
	Al ₂ O ₃	3.2	Na ₂ O	0.3
	Fe ₂ O ₃	10.5	F	0.8
	FeO	0.8	H ₂ O	3.5
	PbO	42.7	CO ₂	8.2
	MgO	0.2	–O = F ₂	0.3
	CaO	3.4	<hr/>	
			Total	100.0

(1) Shirley Ann claim, California, USA; by electron microprobe, FeO by potentiometric titration, Fe²⁺:Fe³⁺ by wet chemical analysis, CO₂ by coulometric titration, H₂O by Karl Fischer titration; corresponding to (Pb_{1.73}Ca_{0.55}Na_{0.09}Ba_{0.01})_{Σ=2.38}(CO₃)_{1.68}[(OH)_{0.51}F_{0.38}]_{Σ=0.89} • (Fe³⁺_{1.19}Al_{0.57}Fe²⁺_{0.10}Mg_{0.05})_{Σ=1.91}Si₄O₁₀(OH)₂ • 0.50H₂O.

Occurrence: In an oxidized lead deposit in contact metamorphosed impure limestone, as an oxidation product of silicates proximate to galena.

Association: Galena, pyrite, chalcopyrite, covellite, chalcocite, quartz, calcite, hematite, cerussite, mimetite, wulfenite, malachite.

Distribution: At the Shirley Ann claim, Ubehebe district, west of Death Valley, Inyo Co., California, USA.

Name: For a predominance of Fe³⁺ over Al and its relation to *surite*.

Type Material: Natural History Museum of Los Angeles Co., Los Angeles, California; National Museum of Natural History, Washington, D.C., USA, 170288.

References: (1) Kampf, A.R., L.L. Jackson, G.B. Sidder, E.E. Foord, and P.M. Adams (1992) Ferrisurite, the Fe³⁺ analogue of surite, from Inyo County, California. *Amer. Mineral.*, 77, 1107–1111.