

Ferriallanite-(La)**CaLa(Fe³⁺AlFe²⁺)(Si₂O₇)(SiO₄)O(OH)**

Crystal Data: Monoclinic. *Point Group:* 2/m. As thick, tabular {100} crystals to 2 mm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Irregular to conchoidal. Hardness = ~6 D(meas.) = 4.099 D(calc.) = 4.208

Optical Properties: Translucent in thin splinters. *Color:* Black. *Streak:* Brown. *Luster:* Vitreous. *Optical Class:* Biaxial (-). $\alpha = 1.791(5)$ $\beta = 1.827(6)$ $\gamma = 1.845(5)$ $2V(\text{calc.}) = 69^\circ$ *Pleochroism:* Strong, *X* = pale brownish, *Y* = grayish brown, *Z* = dark red-brown. *Dispersion:* Weak. *Absorption:* $Z > Y > X$.

Cell Data: *Space Group:* $P2_1/m$. $a = 8.938(2)$ $b = 5.789(1)$ $c = 10.153(2)$ $\beta = 114.54(3)^\circ$ $Z = 2$

X-Ray Diffraction Pattern: In den Dellen quarries, Eifel Mts., Rhineland-Palatinate, Germany. 2.92 (100), 2.72 (50), 3.53 (38), 2.63 (36), 7.96 (34), 1.639 (34), 9.22 (19)

Chemistry:	(1)		(1)
SiO ₂	30.22	ThO ₂	3.64
TiO ₂	2.24	Fe ₂ O ₃	11.05]
Al ₂ O ₃	10.37	FeO	[5.83]
Y ₂ O ₃	0.02	MnO	3.43
La ₂ O ₃	13.17	CaO	9.46
Ce ₂ O ₃	11.58	MgO	0.36
Pr ₂ O ₃	0.50	H ₂ O	[1.55]
Nd ₂ O ₃	0.57	Total	102.44

(1) In den Dellen quarries, Eifel Mts., Rhineland-Palatinate, Germany; average electron microprobe analysis, total FeO apportioned as Fe₂O₃ and FeO, and H₂O calculated from stoichiometry; corresponds to ^{Al}Ca_{0.98}^{Al}(La_{0.47}Ce_{0.41}Th_{0.08}Nd_{0.02}Pr_{0.02})_{Σ=1.00}^{M1}(Fe³⁺_{0.81}Al_{0.14})_{Σ=0.95}^{M2}Al_{1.00}^{M3}(Fe²⁺_{0.47}Mn_{0.28}Ti_{0.16}Mg_{0.05})_{Σ=0.96}[(Si_{0.93}Al_{0.05})_{Σ=0.98}O₄](Si₂O₇)O(OH).

Mineral Group: Epidote supergroup, allanite group.

Occurrence: In a void in a sanidine xenolith in pumice.

Association: Sanidine, 'biotite', magnetite, nosean, clinopyroxene.

Distribution: At In den Dellen pumice quarries, Niedermendig, Mendig, Laach Lake volcanic complex, Eifel Mountains, Rhineland-Palatinate, Germany [TL]. At the Mochalin Log deposit, Chelyabinsk Oblast, South Urals, Russia.

Name: The suffix identifies the *La*-analogue of *ferriallanite*-(Ce). Honors Thomas *Allan* (1777-1833), Scottish mineralogist who discovered the species. The prefix, *ferri*, indicates Fe³⁺ > Al.

Type Material: Natural History Museum, Vienna, Austria (N 8164) and Museum Victoria, Melbourne, Australia (M49750).

References: (1) Kolitsch, U., S.J. Mills, R. Miyawaki, and G. Blass (2012) Ferriallanite-(La), a new member of the epidote supergroup from the Eifel, Germany. *Eur. J. Mineral.*, 24, 741-747.