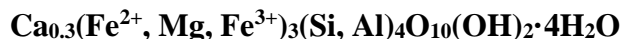


Ferrosaponite

Crystal Data: Monoclinic. *Point Group:* n.d. As spherulites, to 2 mm, and as radial columnar aggregates within calcite.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Uneven. *Tenacity:* Sectile. Hardness = 2 D(meas.) = 2.49(5) D(calc.) = 2.435

Optical Properties: Translucent. *Color:* Dark green, brownish on oxidation. *Streak:* Green. *Luster:* Vitreous.

Optical Class: Biaxial (-). α (calc.) = 1.448 β = 1.641(2) γ = 1.642(2) 2V(meas.) = 5(3)°

Pleochroism: Brownish. *Absorption:* Z > Y. *Orientation:* X ≈ c.

Cell Data: *Space Group:* n.d. a = 5.365(2) b = 9.337(4) c = 14.65(2) β = 94.9(1)° Z = 2

X-ray Powder Pattern: Levoberezhye “Iceland spar” deposit, Evenkiya, Siberia, Russia. 3.03 (100), 7.37 (90), 4.72 (90), 2.585 (90), 2.429 (90), 1.549 (90), 3.80 (80), 14.61 (40) - (expands to 17.9 after glycolation).

Chemistry:	(1)
Na ₂ O	0.21
K ₂ O	0.07
CaO	3.31
MgO	6.62
FeO	21.23
Fe ₂ O ₃	8.78
Al ₂ O ₃	9.95
SiO ₂	33.15
<u>H₂O</u>	<u>17.92</u>
Total	101.24

(1) Levoberezhye “Iceland spar” deposit, Evenkiya, Siberia, Russia; average electron microprobe analysis, H₂O by TGA, Fe²⁺:Fe³⁺ by Mössbauer spectroscopy; corresponds to Ca_{0.31}Na_{0.04}K_{0.01}(Fe²⁺_{1.56}Mg_{0.87}Fe³⁺_{0.52}) $\Sigma=2.95$ [(Si_{2.91}Al_{1.03}Fe³⁺_{0.06}) $\Sigma=4$ O₁₀](OH)₂·4.24H₂O.

Polymorphism & Series: Member of the annite-phlogopite series.

Mineral Group: Smectite group.

Occurrence: A hydrothermal mineral associated with pillow basalts.

Association: Calcite, pyrite, quartz, mordenite, heulandite-Ca, stilbite-Ca.

Distribution: From the Levoberezhye “Iceland spar” deposit, near the Nizhnyaya Tunguska River, Evenkiya, Siberia, Russia.

Name: Prefix, *ferro*, denotes the Fe²⁺-dominant analog of *saponite*.

Type Material: Freiberg University of Mining and Technology, Germany.

References: (1) Chukanov, N.V., I.V. Pekov, A.E. Zadov, V.N. Chukanova, and S. Mökkel (2003) Ferrosaponite Ca_{0.3}(Fe²⁺,Mg,Fe³⁺)₃(Si,Al)₄O₁₀(OH)₂·4H₂O, a new trioctahedral smectite (from Evenkiya). Zap. Vseross. Mineral. Obshch., 132(2), 68-74 (in Russian, English abs.). (2) (2004) Amer. Mineral., 89(2), 467 (abs. ref. 1). (3) (2004) Can. Mineral., 42(1), 225 (abs. ref. 1).