Kilchoanite

Crystal Data: Orthorhombic. Point Group: 2/m 2/m 2/m or mm2. No crystal forms observed as typically a replacement of rankinite; massive, to 2 mm.

Physical Properties: Hardness = n.d. D(meas.) = 2.992(2) D(calc.) = 3.00

Optical Properties: Semitransparent. Color: Colorless; in thin section, interference colors are typically weak ultra-blue or ultra-brown. Optical Class: Biaxial (-). Dispersion: r > v, distinct to strong. α = 1.646–1.647 β = 1.648 γ = 1.650 2V(meas.) = 46°–60°

Cell Data: Space Group: Imam or Ima2. a = 11.42(5) b = 5.09(5) c = 21.95(5) Z = 8

X-ray Powder Pattern: Kilchoan, Scotland. 2.89 (s1), 3.07 (s2), 2.68 (s3), 3.56 (ms), 2.36 (ms), 1.964 (ms), 5.17 (m)

Chemistry: (1) Kilchoan, Scotland; an analysis, not given, from which CO₂ was deducted as spurrite, yielded (Ca²⁺93Fe³⁺0.01)[Si₁₉₆Al₀.04]S=2.94[O₆.94(OH)₀.06]S=7.00· (2) Fuka, Japan; an analysis, not available, yielded (Ca³⁺₁₉Fe²⁺₀.₀₁Na₀.₀₁K₀.₀₁)[Si₁₉₁Al₀.₀₂]S=3.16[Si₁.₁₉₁Al₀.₀₂]S=1.₉₃O₇

Polymorphism & Series: Dimorphous with rankinite.

Occurrence: In limestones thermally metamorphosed by invasion of gabbro; thought to have formed during retrograde metamorphism following decarbonation of limestone and thus under low pressure of CO₂ (Kilchoan, Scotland; Carlingford, Ireland).

Association: Rankinite, spurrite, tilleyite, melilite, cuspidine, grossular, wollastonite, vesuvianite (Kilchoan, Scotland); rankinite, larnite, spurrite (Golden Gully, New Zealand).


Name: For Kilchoan, Scotland, where it was first found.
