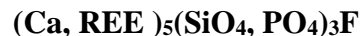


Fluorcalciobriitholite**Crystal Data:** Hexagonal. *Point Group:* 6/m. As euhedral hexagonal prismatic crystals to 10 mm.**Physical Properties:** *Cleavage:* n.d. *Tenacity:* n.d. *Fracture:* n.d. Hardness = 5.5
D(meas.) = 4.2(1) D(calc.) = 4.3 Metamict if radioactive.**Optical Properties:** Transparent. *Color:* Pale pinkish to brown, colorless in thin section.
Streak: White. *Luster:* Vitreous to greasy; resinous (metamict).
Optical Class: Uniaxial (-). $\omega = 1.735(5)$ $\varepsilon = 1.730(5)$ Nonpleochroic.
Optical Class: Isotropic or slightly anisotropic (metamict).**Cell Data:** *Space Group:* P6₃/m. $a = 9.580(7)$ $c = 6.985(4)$ $Z = 2$ **X-Ray Diffraction Pattern:** Mount Kukisvumchorr, Khibiny complex, Kola Peninsula, Russia.
2.85 (100), 3.15 (70), 2.78 (60), 3.51 (45), 1.122 (30), 1.965 (25), 1.236 (25)

Chemistry:	(1)		(1)		(1)
CaO	21.89	Nd ₂ O ₃	6.21	P ₂ O ₅	10.44
MnO	0.34	Sm ₂ O ₃	0.82	SO ₃	0.05
SrO	0.25	Gd ₂ O ₃	0.74	F	2.02
Fe ₂ O ₃	0.05	Dy ₂ O ₃	0.61	Cl	0.06
Y ₂ O ₃	2.88	Er ₂ O ₃	0.30	<u>-O = (F+Cl)</u>	<u>0.86</u>
La ₂ O ₃	12.36	Yb ₂ O ₃	0.44	Total	99.36
Ce ₂ O ₃	21.22	ThO ₂	1.44		
Pr ₂ O ₃	1.86	SiO ₂	16.24		

(1) Mount Kukisvumchorr, Khibiny complex, Kola Peninsula, Russia; average electron microprobe analysis; corresponds to [Ca_{2.80}(Ce_{0.93}La_{0.54}Nd_{0.26}Y_{0.18}Pr_{0.08}Sm_{0.03}Gd_{0.03}Dy_{0.02}Yb_{0.02}Er_{0.01})_{Σ=2.12}Th_{0.04}Mn_{0.03}Sr_{0.02}]_{Σ=4.99}[(Si_{1.94}P_{1.06})_{Σ=3}O₁₂][F_{0.76}O_{0.22}Cl_{0.01}]_{Σ=0.99}.**Mineral Group:** Apatite supergroup, briitholite group.**Occurrence:** In veinlets cross-cutting fenitized gneiss xenoliths in foyaite (Khibiny). In alkaline metasomatite.**Association:** Orthoclase, nepheline, sodalite (Khibiny); fluorbriitholite-(Ce), potassic feldspar, albite, alkali pyroxene, fluorapatite, natrolite (Burpala).**Distribution:** On the eastern slope of Mount Kukisvumchorr, at the source of the Tuliok river, Khibiny alkaline complex, Kola Peninsula, Russia. In the Sol'skoye REE deposit, Burpala and Ulan-Erge alkaline massifs, Siberia, Russia.**Name:** The prefix, *calcio*, indicates an analog of *fluorbriitholite*-(Ce) with calcium dominant over rare earth elements.**Type Material:** A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (3420/1).**References:** (1) Pekov, I.V., M. Pasero, A.N. Yaskovskaya, N.V. Chukanov, D.Yu. Pushcharovsky, S. Merlino, N.V. Zubkova, N.N. Kononkova, Y.P. Men'shikov, and A.E. Zadov (2007) Fluorcalciobriitholite, (Ca,REE)₅[(Si,P)O₄]₃F, a new mineral: description and crystal chemistry. *Eur. J. Mineral.*, 19, 95-103. (2) (2008) *Amer. Mineral.*, 93, 252 (abs. ref. 1). (3) Pasero, M., A.R. Kampf, C. Ferraris, I.V. Pekov, J. Rakovan, and T.J. White (2010) Nomenclature of the apatite supergroup minerals. *Eur. J. Mineral.*, 22, 163-179.