

**Crystal Data:** Triclinic. *Point Group:* 1. As rounded pseudohexagonal inclusions, to 7 mm, in thermonatrite.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = 3 D(meas.) = 2.85 D(calc.) = 2.88 Soluble in H<sub>2</sub>O.

**Optical Properties:** Transparent. *Color:* Colorless. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Dispersion:*  $r > v$ , weak.  $\alpha = 1.508(2)$   $\beta = 1.515(2)$   $\gamma = 1.520(2)$   $2V(\text{meas.}) = 80^\circ$

**Cell Data:** *Space Group:* P1.  $a = 13.387(7)$   $b = 13.383(5)$   $c = 7.072(3)$   $\alpha = 90.25(3)^\circ$   $\beta = 89.73(4)^\circ$   $\gamma = 133.12(3)^\circ$   $Z = [8]$

**X-ray Powder Pattern:** Mt. Rasvumchorr, Kola Peninsula, Russia. 2.649 (100), 3.054 (45), 3.049 (40), 2.005 (40), 1.762 (33), 3.51 (24), 1.470 (21)

Chemistry:	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	36.00	35.48
MnO	0.39	
CaO	26.66	28.04
SrO	0.55	
Na <sub>2</sub> O	31.44	30.98
K <sub>2</sub> O	0.10	
F	9.32	9.50
-O = F <sub>2</sub>	3.92	4.00
Total	100.54	100.00

(1) Mt. Rasvumchorr, Kola Peninsula, Russia; corresponding to Na<sub>1.99</sub>(Ca<sub>0.94</sub>Sr<sub>0.01</sub>Mn<sub>0.01</sub>)<sub>Σ=0.96</sub>P<sub>1.00</sub>O<sub>3.97</sub>F<sub>0.97</sub>. (2) Na<sub>2</sub>Ca(PO<sub>4</sub>)F.

**Occurrence:** A rare late-stage mineral in ijolite-urtite pegmatite.

**Association:** Thermonatrite, villiaumite, aegirine, apatite, barytolamprophyllite.

**Distribution:** On Mts. Rasvumchorr, Yukspor, and Koashva, Khibiny massif, Kola Peninsula, Russia.

**Name:** For sodium, NAtrium, CaLcium, and PHosphorus in the composition.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5534; Mining Institute, St. Petersburg, 1116/2; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 79854; The Natural History Museum, London, England, 1994,15.

**References:** (1) Khomyakov, A.P., M.Y. Kazakova, and D.Y. Pushcharovskiy (1980) Nacaphite (Na<sub>2</sub>Ca(PO<sub>4</sub>)F) – a new mineral. Zap. Vses. Mineral. Obshch., 109, 50–52 (in Russian). (2) (1981) Amer. Mineral., 66, 218 (abs. ref. 1). (3) Sokolova, E.V., Y.K. Egorov-Tismenko, and A.P. Khomyakov (1989) The crystal structure of nacaphite. Doklady Acad. Nauk SSSR, 304, 610–615 (in Russian).