

Crystal Data: Triclinic, pseudotetragonal. *Point Group:* $\bar{1}$ or 1; pseudo $\bar{4}$. As irregular rounded grains, to 1 mm, in aggregates, typically replacing apatite.

Physical Properties: *Fracture:* Conchoidal. Hardness = ~ 4.5 D(meas.) = 3.01(1)
D(calc.) = 3.05

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Biaxial (+); sensibly uniaxial (+). $\alpha = 1.571(2)$ $\beta = 1.571(2)$ $\gamma = 1.590(2)$
2V(meas.) = n.d.

Cell Data: *Space Group:* $P\bar{1}$ or $P1$. $a = 5.401(6)$ $b = 11.647(8)$ $c = 16.484(7)$
 $\alpha = 134.99(3)^\circ$ $\beta = 90.04(6)^\circ$ $\gamma = 89.96(7)^\circ$ $Z = 2$, or, for the pseudotetragonal cell:
Space Group: $I\bar{4}$. $a = 11.644(2)$ $c = 5.396(1)$ $Z = 2$

X-ray Powder Pattern: Khibiny massif, Kola Peninsula, Russia.
2.772 (100), 3.73 (80b), 2.508 (80), 2.290 (80), 2.703 (70), 1.877 (60), 5.83 (40)

Chemistry:	(1)	(2)
P ₂ O ₅	42.1	42.11
CaO	33.7	33.27
Na ₂ O	22.7	22.99
K ₂ O	0.8	
F	2.5	2.82
-O = F ₂	1.0	1.19
Total	100.8	100.00

(1) Khibiny massif, Kola Peninsula, Russia; by electron microprobe, average of three analyses; corresponds to (Na_{4.90}K_{0.11})_{Σ=5.01}Ca_{4.02}(P_{0.99}O₄)₄F_{0.88}. (2) Na₅Ca₄(PO₄)₄F.

Occurrence: In pegmatitic segregations in nepheline syenite in a differentiated alkalic massif.

Association: Apatite, nacaphite, eudialyte, delhayelite, canasite, djerfisherite, rasvumite, orthoclase, alkalic amphibole, titanite.

Distribution: On Mt. Yukspor and from a drillcore in the Kuniok River valley, Khibiny massif, Kola Peninsula, Russia.

Name: To honor Dr. Yevgeny I. Nefedov (1910–1976), Russian mineralogist, St. Petersburg, Russia, involved in the discovery of a number of Kola minerals.

Type Material: Mining Institute, St. Petersburg, 1302/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82759.

References: (1) Khomyakov, A.P., G.N. Nechelyustov, and G.I. Dorokhova (1983) Nefedovite Na₅Ca₄(PO₄)₄F – a new mineral. Zap. Vses. Mineral. Obshch., 112, 479–483 (in Russian). (2) (1983) Mineral. Abs., 35, 193–194 (abs. ref. 1). (3) (1984) Amer. Mineral., 69, 812–813 (abs. ref. 1). (4) Sebais, M., G.I. Dorokhova, E.A. Pobedinskaya, and A.P. Khomyakov (1984) Crystal structure and typomorphism of nefedovite. Sov. Phys. Doklady Acad. Nauk SSSR, 29, 700–703 (in Russian).