Imandrite $Na_{12}Ca_3Fe_2^{3+}Si_{12}O_{36}$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Anhedral grains, to 3 mm; as rims around eudialyte.

Physical Properties: Hardness = ∼4 D(meas.) = 2.93 D(calc.) = 2.92

Optical Properties: Semitransparent. *Color:* Honey-yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.605$ $\beta = 1.608$ $\gamma = 1.612$ 2V(meas.) = 75°

Cell Data: *Space Group: Pmnn.* $a = 10.331(1)$ $b = 10.546(1)$ $c = 7.426(4)$ Z = 1

X-ray Powder Pattern: Khibiny massif, Russia.
2.63 (100), 1.853 (70), 3.33 (60), 3.73 (50), 1.520 (50)

Chemistry:

	(1)	(2)
SiO_2	50.95	50.75
TiO_2	0.95	
ZrO_2	1.43	
Fe_2O_3	5.47	11.24
MnO	2.30	
MgO	0.26	
CaO	12.00	11.84
Na_2O	26.66	26.17
Total	100.02	100.00

(1) Khibiny massif, Russia; by electron microprobe, total Fe as Fe_2O_3. (2) $Na_{12}Ca_3Fe_2Si_{12}O_{36}$.

Mineral Group: Lovozerite group.

Occurrence: In apatite-bearing alkalic pegmatitic rocks in a differentiated alkalic massif.

Association: Eudialyte, aegirine, orthoclase, alkalic amphibole, pectolite.

Distribution: From a drill core in the Khibiny massif, Vounnemiok River area, west of Lake Imandra, Kola Peninsula, Russia.

Name: For Lake Imandra on the Kola Peninsula, Russia.

Type Material: Geology Museum, Kola Branch, Academy of Sciences, Apatity,5530; Mining Institute, St. Petersburg, 1298/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 80181; The Natural History Museum, London, England, 1994,10.

References: (1) Khomyakov, A.P., N.M. Chernitsova, S.M. Sandomirskaya, and G.L. Vasil'eva (1979) Imandrite, a new mineral of the lovozerite family. Mineral. Zhurnal, 1(1), 89–93 (in Russian). (2) (1980) Amer. Mineral., 65, 810 (abs. ref. 1). (3) (1980) Mineral. Mag., 31, 496 (abs. ref. 1). (4) Chernitsova, N.M., Z.V. Pudovkina, A.A. Voronkov, V.V. Ilyukhin, and Y.A. Pyatenko (1980) Imandrite $Na_{12}Ca_3Fe_2[Si_6O_{18}]_2$ as a representative of a new branch in the lovozerite structural family. Doklady Acad. Nauk SSSR, 252, 618–621 (in Russian). (5) (1980) Chem. Abs., 93, 141277 (abs. ref. 4).