Feklichevite $Na_{11}Ca_9(Fe^{3+}, Fe^{2+})_2Zr_3Nb(Si_{25}O_{73})(OH, H_2O, Cl, O)_5$

Crystal Data: Hexagonal. *Point Group*: 3*m*. As euhedral, equant to thick-tabular crystals, and as grains to 2.5 cm, displaying {001}, {110}, {100}, {101}, {104}, {012}, {021}, and {267}.

Physical Properties: *Cleavage*: Perfect on {001}. *Tenacity*: Brittle. *Fracture*: Stepped to uneven. Hardness = 5.5 D(meas.) = 2.87(1) D(calc.) = 2.869

Optical Properties: Translucent. *Color*: Dark brown to almost black, brown to slightly pinkish brown in splinters. *Streak*: Brown. *Luster*: Vitreous.
Optical Class: Uniaxial (-). ω = 1.620(1) ε = 1.616(1)

Cell Data: *Space Group*: *R*3*m*. a = 14.255(1) c = 30.170(2) Z = 3

X-ray Powder Pattern: Kovdor massif, Kola Peninsula, Russia.
2.854 (100), 2.977 (81), 4.31 (69), 3.218 (56), 2.602 (44), 3.036 (42), 6.43 (39)

Chemistry:

	(1)
Na_2O	11.45
CaO	15.55
SrO	0.28
MnO	0.49
FeO	0.28
Fe_2O_3	3.20
La_2O_3	0.11
Ce_2O_3	0.16
SiO_2	50.35
ZrO_2	11.65
HfO_2	0.62
TiO_2	0.12
Nb_2O_5	2.41
H_2O	1.72
F	0.12
Cl	0.61
-O = (F, Cl)	0.19
Total	100.73

(1) Kovdor massif, Kola Peninsula, Russia; average electron microprobe analysis, H_2O by Penfield method, Fe_2O_3 by wet chemical analysis; corresponds to $Na_{10.80}(Ca_{2.35}Na_{0.33}Sr_{0.08}Ce_{0.03}La_{0.02})_{\Sigma=2.81}Ca_6(Fe^{3+}_{1.21}Fe^{2+}_{0.87})_{\Sigma=2.08}(Zr_{2.85}Hf_{0.09}Ti_{0.05})_{\Sigma=2.99}[Nb_{0.55}(Si_{25.25}Mn_{0.21})_{\Sigma=25.46}O_{73}][(H_2O)_{1.67}(OH)_{1.12}O_{0.26}]_{\Sigma=3.05}[(OH)_{1.29}Cl_{0.52}F_{0.19}]_{\Sigma=2.00}$.

Mineral Group: Eudialyte group.

Occurrence: In a pegmatoidal cancrinite syenite vein in a phlogopite mine.

Association: K-feldspar, cancrinite, aegirine-diopside, pectolite, titanite, hematite, pyrrhotite.

Distribution: At the Kovdor phlogopite mine, Kovdor massif, Kola Peninsula, Russia.

Name: Honors Vladimir Georgevich *Feklichev* (1933-1999), mineralogist and crystallographer, author of Diagnostic Constants of Minerals (1992).

Type Material: A.E. Fersman Mineralogical Museum, Moscow, Russia.

References: (1) Pekov, I.V., I.A. Ekimenkova, N.V. Chukanov, R.K. Rastsvetaeva, N.N. Kononkova, N.A. Pekova, and A.E. Zadov (2001) Feklichevite, $Na_{11}Ca_9(Fe^{3+},Fe^{2+})_2Zr_3Nb[Si_{25}O_{73}](OH,H_2O,Cl,O)_5$, a new mineral of the eudialyte group from the Kovdor massif, Kola Peninsula. Zap. Vseross. Mineral. Obshch., 130(3), 55-65 (in Russian, English abs.). (2) (2002) Amer. Mineral., 87, 1732 (abs. ref. 1).