Kolskyite $(Ca\square)Na_2Ti_4(Si_2O_7)_2O_4(H_2O)_7$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As platy crystals to 500 μm.

Physical Properties: *Cleavage*: Perfect on {001}. *Fracture*: Splintery. *Tenacity*: Brittle. Hardness = 3 D(meas.) = n.d. D(calc.) = 2.509

Optical Properties: Transparent. *Color*: Pinkish yellow. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (-). α = 1.669 β = 1.701 γ = 1.720 2V(meas.) = 73.6(5)° 2V(calc.) = 74.0°

Cell Data: *Space Group*: $P\bar{1}$. a = 5.387(1) b = 7.091(1) c = 15.473(3) α = 96.580(4)° β = 93.948(4)° γ = 89.818(3)° Z = 1

X-ray Powder Pattern: Kirovskii mine, Khibiny alkaline massif, Kola Peninsula, Russia. 15.161 (100), 2.810 (19), 3.069 (12), 2.938 (10), 2.680 (9), 1.771 (9), 2.618 (8)

Chemistry:	(1)
Nb_2O_5	6.96
ZrO_2	0.12
TiO_2	26.38
SiO_2	27.08
FeO	0.83
MnO	2.95
MgO	0.76
BaO	3.20
SrO	5.21
CaO	4.41
K_2O	0.79
Na_2O	6.75
H_2O	[13.81]
F	0.70
$-O = F_2$	0.29
Total	99.66

(1) Kirovskii mine, Khibiny alkaline massif, Kola Peninsula, Russia; average of 4 electron microprobe analyses, H_2O calculated and confirmed by FTIR; corresponding to $(Na_{1.93}Mn_{0.04}Ca_{0.03})_{\Sigma=2.00}(Ca_{0.67}Sr_{0.45}Ba_{0.19}K_{0.15})_{\Sigma=1.46}(Ti_{2.93}Nb_{0.46}Mn_{0.33}Mg_{0.17}Fe^{2+}_{0.10}Zr_{0.01})_{\Sigma=4.00}$ $Si_{4.00}O_{24.67}H_{13.60}F_{0.33}$.

Occurrence: Formed in a pegmatite as a result of hydrothermal activity.

Association: Natrolite, nechelyustovite, kazanskyite, barytolamprophyllite, hydroxylapatite, belovite-(La), belovite-(Ce), gaidonnayite, nenadkevichite, epididymite, apophyllite-(KF), sphalerite.

Distribution: At the Kirovskii mine (+252 m level), Mount Kukisvumchorr, Khibiny alkaline massif, Kola Peninsula, Russia.

Name: For the Kola Peninsula (*Kolsky Poluostrov* in Russian).

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4383/1).

References: (1) Cámara, F., E. Sokolova, Y. Abdu, F.C. Hawthorne, and A.P. Khomyakov (2013) Kolskyite, $(Ca\square)Na_2Ti_4(Si_2O_7)_2O_4(H_2O)_7$, a group-IV Ti-disilicate mineral from the Khibiny Alkaline Massif, Kola Peninsula, Russia: Description and crystal structure. Can. Mineral., 51(6), 921-936. (2) (2015) Amer. Mineral., 100, 1651 (abs. ref. 1).