Kalifersite $K_5Fe^{3+}_7Si_{20}O_{50}(OH)_6 \cdot 12H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As fibrous bundles of (100) lamellae to 5 mm, elongate along [001], and as aggregates to 1 cm in cavities.

Physical Properties: *Cleavage*: Good on {100} and {010}. *Tenacity*: Brittle. *Fracture*: Fibrous. Hardness = 2 D(meas.) = 2.37(2) D(calc.) = 2.28 Nonfluorescent.

Optical Properties: Translucent. *Color*: Pink-brownish. *Streak*: White. *Luster*: Earthy to silky. *Optical Class*: Biaxal (+). α = 1.523(2) β = 1.525(2) γ = 1.550(2) 2V(meas.) = 30(2)° 2V(calc) = 32° *Orientation*: $X \approx a$, $Y \approx b$, $Z \approx c$. Optically pseudo-orthorhombic. *Pleochroism*: Medium, Z = yellow, $Y = X$ = slightly pink.

Cell Data: *Space Group*: $P\bar{1}$. a = 14.86(4) b = 20.54(4) c = 5.29(2) α = 95.6(3)° β = 92.3(3)° γ = 94.4(3)° Z = 1

X-Ray Diffraction Pattern: Mt. Kukisvumchorr, Khibina massif, Kola Peninsula, Russia. 12.36 (100), 11.60 (40), 10.21 (14), 4.162 (5), 3.818b (5), 2.196 (5), 2.017b (5)

Chemistry:

	(1)
Na_2O	1.98
K_2O	7.71
MgO	1.21
MnO	2.38
Fe_2O_3	17.96
SiO_2	55.39
H_2O	13.42
Total	100.40

(1) Mt. Kukisvumchorr, Khibina massif, Kola Peninsula, Russia; average electron microprobe analysis supplemented by IR spectroscopy, H_2O by Penfield method; corresponds to $(K_{3.58}Na_{1.40})_{\Sigma=4.98}[Fe^{3+}_{4.92}Mn_{0.73}Mg_{0.66}Ca_{0.14}]_{\Sigma=6.45}[Si_{20.16}O_{50}][(OH)_{3.44}(H_2O)_{14.56}]_{\Sigma=18}$.

Polymorphism & Series: In the palysepiole polysomatic series.

Occurrence: In hydrothermally altered peralkaline pegmatite in urtite.

Association: Aegirine, fenaksite, pectolite.

Distribution: From Mt. Kukisvumchorr, Khibina massif, Kola Peninsula, Russia.

Name: Alludes to the chemical composition (*kali*um, *fer*rum, *si*licium).

Type Material: A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (90280 and 90281) and the Natural History Museum, Torino, Italy (1998001.01).

References: (1) Ferraris, G., A.P. Khomyakov, E. Belluso, and S.V. Soboleva (1998) Kalifersite, a new alkaline silicate from Kola Peninsula (Russia) based on a palygorskite-sepiolite polysomatic series. Eur. J. Mineral., 10, 865-874. (2) (1999) Amer. Mineral., 84, 991 (abs. ref. 1).