Manaksite $KNaMn^{2+}Si_4O_{10}$

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As grains, to 3 mm, and aggregates, to 5 mm.

Physical Properties: *Cleavage:* {001}, perfect; {010}, less perfect. *Fracture:* Hackly to steplike. *Tenacity:* Brittle. Hardness = 5 D(meas.) = 2.73(2) D(calc.) = 2.71

Optical Properties: Translucent to transparent. *Color:* Colorless, cream-white, pale rose. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (–). *Dispersion:* $r > v$, medium. $\alpha = 1.540(2)$ $\beta = 1.551(2)$ $\gamma = 1.557(2)$ 2V(meas.) = 73°

Cell Data: *Space Group:* $P\bar{1}$. $a = 6.993(5)$ $b = 8.219(7)$ $c = 10.007(9)$ $\alpha = 105.11(7)°$ $\beta = 100.76(6)°$ $\gamma = 114.79(6)°$ Z = 2

X-ray Powder Pattern: Lovozero massif, Russia.
3.45 (100), 3.26 (90), 3.05 (80), 6.89 (70), 2.880 (70), 2.715 (70), 2.463 (70)

Chemistry:

	(1)
SiO_2	62.0
FeO	0.8
MnO	17.2
MgO	0.3
CaO	0.2
SrO	0.2
Na_2O	8.9
K_2O	10.8
Total	100.4

(1) Lovozero massif, Russia; by electron microprobe, average of three analyses; corresponds to $K_{0.89}Na_{1.11}Mg_{0.03}Ca_{0.01}Sr_{0.01}(Mn^{2+}_{0.94}Fe_{0.03})_{\Sigma=0.97}Si_{3.99}O_{10}$.

Occurrence: In ultra-agpaitic pegmatites in a differentiated alkalic massif.

Association: Nepheline, sodalite, analcime, potassic feldspar, albite, cancrisilite, arfvedsonite, aegirine, ussingite, makatite, grumantite, lomonosovite, villiaumite, additional minor minerals.

Distribution: On Mt. Alluaiv, Lovozero massif, Kola Peninsula, Russia.

Name: For MAnganese; sodium, NAtrium; potassium, Kalium; and SIlicon in its composition.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, p575/3.

References: (1) Khomyakov, A.P., T.A. Kurova, and G.N. Nechelyustov (1992) Manaksite $NaKMnSi_4O_{10}$ – a new mineral. Zap. Vses. Mineral. Obshch., 121(1), 112–115 (in Russian). (2) (1993) Amer. Mineral., 78, 1315–1316 (abs. ref. 1). (3) (1994) Mineral. Abs., 45, 238–239 (abs. ref. 1).