Nenadkevichite  
(Na, Ca, K)(Nb, Ti)Si₂O₆(O, OH)·2H₂O

Crystal Data:  
Orthorhombic.  
Point Group: 2/m 2/m 2/m.  
As equant or bladed pseudohexagonal prisms, to 8 mm; in foliated segregations and lamellar masses.

Physical Properties:  
Cleavage: Poor on {001}.  
Fracture: Uneven.  
Tenacity: Brittle.  
Hardness = 5  
D(meas.) = 2.78–2.885  
D(calc.) = 2.70–2.81

Optical Properties:  
Opaque to translucent, transparent in very small fragments.  
Color: Rose, very pale pink, pale yellow, brown; dark brown due to manganese oxides.  
Streak: White to very pale rose.  
Luster: Vitreous to dull.  
Optical Class: Biaxial (+).  
Pleochroism: Slight; X = colorless; Y = pale yellow; Z = pale rose.  
Orientation: X = a; Y = c; Z = b.  
Absorption: Z > Y > X.  
α = 1.633–1.659  
β = 1.642–1.686  
γ = 1.738–1.785  
2V(meas.) = 31°–45°

Cell Data:  
Space Group: Pbam.  
a = 7.408(2)  
b = 14.198(3)  
c = 7.148(2)  
Z = 4

X-ray Powder Pattern:  
Lovozero massif, Russia.  
3.20 (100), 3.10 (100), 1.427 (100), 1.289 (90), 2.49 (80), 2.58 (70), 1.705 (70)

Chemistry:  
(Na, Ca, K)(Nb, Ti)Si₂O₆(O, OH)·2H₂O

(1) Kola Peninsula, Russia.  
(2) Mont Saint-Hilaire, Canada; corresponds to (Na₁₋ₓ₋₀.94K₀.06Ca₀.0₃Mn₀.0₁Nb₀.6₉Ti₀.3₀)Si₂₀.₀₆(OH)₀.₇₀O₆(Σ=1.0₀)·2H₂O.

Occurrence:  
Between crystals of microcline in a natrolite-albite-rich pegmatite in nepheline syenite in a differentiated alkaline massif (Lovozero massif, Russia); in pegmatites, cavities in igneous breccia, hornfels, and marble xenoliths in an intrusive alkaline gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association:  
Microcline (Lovozero massif, Russia); microcline, aegirine, catapleiite, ancylite, epididymite, eudialyte, serandite, pectolite, apophyllite, montereganite, vesuvianite, many other species (Mont Saint-Hilaire, Canada).

Distribution:  
On Mts. Karnasurt and Flora, in the Lovozero massif, and in the Vuoriyarvi carbonatite complex, Kola Peninsula, Russia.  
From Gjerdingen, near Oslo, Norway.  
At Mont Saint-Hilaire and near Saint-Amable, Quebec, Canada.  
From the Ilmaaussaq intrusion and at Narsarssuk, Greenland.

Name:  
For Konstantin Avtonomovich Nenadkevich (1880–1963), Russian mineralogist and geochemist, A.E. Fersman Mineralogical Museum, Moscow, Russia.

Type Material:  
Mining Institute, St. Petersburg, 183a/4; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 57260, 59411, vis4521.

References:  
(2) (1955) Amer. Mineral., 40, 1154 (abs. ref. 1).  
(4) Perrault, G., C. Boucher, and J. Vicat (1973) Structure cristalline du nenadkevichite (Na, K)₂₋ₓ(Nb, Ti)(O, OH)₂O₆·2H₂O.  
Acta Cryst., 29, 1432–1438 (in French with English abs.).  
Cambridge Univ. Press, 155.

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