Kupletskeite \( (K, Na)_3(Mn, Fe^{2+})_7(Ti, Nb)_2Si_8O_{24}(O, OH)_7 \)

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**Crystal Data:** Monoclinic, or triclinic, pseudomonoclinic. **Point Group:** n.d. In thin plates and lamellar masses, to 5 cm; as radial masses.

**Physical Properties:** Cleavage: Perfect on \{100\}. Hardness = 3–4  D(meas.) = 3.20–3.36  D(calc.) = [3.05]

Dispersion: \( r > v \), strong.  
\( \alpha = [1.656]-1.660 \quad \beta = 1.699-1.702 \quad \gamma = 1.731-1.734 \)
\( 2V(meas.) = 79^\circ-85^\circ \)

**Cell Data:** Space Group: n.d.  
\( a = 13.14 \quad b = 12.82 \quad c = 5.42 \quad \alpha = 93^\circ 94' \quad \beta = 101^\circ 40' \quad \gamma = 113^\circ 38' \quad Z = 1 \)

**X-ray Powder Pattern:** Lovozero massif, Russia; nearly identical with astrophyllite.  
3.505 (8), 2.642 (8), 2.573 (4), 2.099 (3), 1.732 (3), 3.249 (1), 2.998 (1)

**Chemistry:**

<table>
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<tr>
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<th>(1)</th>
<th>(2)</th>
<th>(1)</th>
<th>(2)</th>
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<tbody>
<tr>
<td>SiO₂</td>
<td>32.60</td>
<td>33.54</td>
<td>CaO</td>
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<tr>
<td>TiO₂</td>
<td>12.04</td>
<td>10.64</td>
<td>BaO</td>
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<td>ZrO₂</td>
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<tr>
<td>Al₂O₃</td>
<td>1.68</td>
<td>1.00</td>
<td>K₂O</td>
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<tr>
<td>Fe₂O₃</td>
<td>5.44</td>
<td>5.35</td>
<td>F⁻</td>
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<tr>
<td>Nb₂O₅</td>
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<td>FeO</td>
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<td>MnO</td>
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<td>23.60</td>
<td>—O = F₂</td>
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<td>MgO</td>
<td>2.98</td>
<td>1.63</td>
<td>Total</td>
<td>99.98</td>
</tr>
</tbody>
</table>

(1) Mt. Kuivchorr, Lovozero massif, Russia; total Fe as Fe₂O₃.  
(2) Mt. Lepkhe-Nelm, Lovozero massif, Russia.

**Polymorphism & Series:** Forms two series, with astrophyllite, and with cesium kupletskeite.

**Mineral Group:** Astrophyllite group.

**Occurrence:** In the natrolite-rich central part and in the wall rocks of nepheline syenite pegmatites in a differentiated alkaline massif (Lovozero massif, Russia).

**Association:** Manganoan pectolite, neptunite, microcline, eudialyte, nepheline, aegirine (Lovozero massif, Russia); aegirine, analcime, gonnardite, apophyllite, eggletonite, pyrophanite (Little Rock, Arkansas, USA).

**Distribution:** In Russia, on Mt. Kuivchorr and Lepkhe-Nelm, Lovozero massif, Kola Peninsula, and some other less-well-defined localities. From the Oktyabr massif, eastern Azov area, Ukraine. In the Illmaussaq intrusion and the Werner Berge complex, Greenland. At Gjerdingen, north of Oslo, Norway. On Granite Mountain, near Little Rock, Pulaski Co., and the Diamond Jo quarry, Magnet Cove, Hot Spring Co., Arkansas, USA. At Mont Saint-Hilaire, Quebec, Canada.

**Name:** For Boris Mikhailovich Kupletskei (1894–1965), Russian geologist, Institute of Geosciences, Moscow, and El’za Maximilianovna Bohnshtedt-Kupletskei (1898–1974), Russian mineralogist, Institute of Geology of Ore Deposits, Petrology, Mineralogy, and Geochemistry, Moscow, Russia.

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**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 1035; Vernadsky Geological Museum, Moscow, 47963; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 58869.

**References:**
7. (1966) Chem. Abs., 64, 7460 (abs. ref. 6).