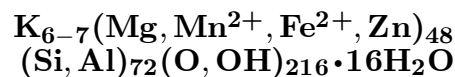


# Lennilenapeite



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**Crystal Data:** Triclinic. *Point Group:* n.d. As platy crystals forming dense aggregates, to 1 cm; as drusy coatings.

**Physical Properties:** *Cleavage:* Perfect on {001}, imperfect on {hk0}. *Tenacity:* Brittle. Hardness = ~3 D(meas.) = 2.72 D(calc.) = n.d.

**Optical Properties:** Translucent. *Color:* Dark brown, light green; black in aggregates. *Streak:* Brown. *Luster:* Vitreous to resinous. *Optical Class:* Biaxial (-); pseuduniaxial (-). *Pleochroism:* Strong; X = light brown to colorless; Y = Z = dark brown. *Absorption:* Y = Z > X.  $\alpha = 1.553(2)$   $\beta = 1.594(4)$   $\gamma = 1.594(4)$   $2V(\text{meas.}) = 0^\circ$

**Cell Data:** *Space Group:* n.d.  $a = 21.9(1)$   $b = \text{n.d.}$   $c = \text{n.d.}$   $\alpha = \text{n.d.}$   $\beta = \text{n.d.}$   $\gamma = \text{n.d.}$   $Z = 1$

**X-ray Powder Pattern:** Franklin, New Jersey, USA.  
12.11 (100), 2.582 (40), 2.734 (30), 2.365 (30), 1.593 (30), 1.578 (30), 4.07 (20)

Chemistry:	(1)	(2)
SiO <sub>2</sub>	44.5	45.11
Al <sub>2</sub> O <sub>3</sub>	5.4	4.79
Fe <sub>2</sub> O <sub>3</sub>	5.9	7.15
FeO	6.4	7.32
MnO	11.6	6.22
ZnO	6.3	4.92
MgO	7.0	11.39
CaO	trace	0.59
BaO	1.3	0.91
K <sub>2</sub> O	3.0	2.76
Na <sub>2</sub> O	0.2	0.38
H <sub>2</sub> O	8.4	[8.46]
Total	100.0	[100.00]

(1) Franklin, New Jersey, USA; by electron microprobe, Fe<sup>2+</sup>:Fe<sup>3+</sup> and H<sub>2</sub>O separately determined, total recalculated to 100.0% from 102.2%; corresponds to (K<sub>5.36</sub>Ba<sub>0.71</sub>Na<sub>0.54</sub>)<sub>Σ=6.61</sub>(Mg<sub>14.63</sub>Mn<sub>13.78</sub>Fe<sub>7.50</sub><sup>2+</sup>Zn<sub>6.52</sub>Fe<sub>5.57</sub><sup>3+</sup>)<sub>Σ=48.00</sub>(Si<sub>62.42</sub>Al<sub>8.93</sub>Fe<sub>0.65</sub><sup>3+</sup>)<sub>Σ=72.00</sub>[O<sub>171.29</sub>(OH)<sub>44.71</sub>]<sub>Σ=216.00</sub>•16.94H<sub>2</sub>O. (2) Do.; H<sub>2</sub>O by difference, corresponds to (K<sub>4.79</sub>Na<sub>1.01</sub>Ca<sub>0.86</sub>Ba<sub>0.48</sub>)<sub>Σ=7.14</sub>(Mg<sub>23.12</sub>Fe<sub>8.33</sub><sup>2+</sup>Mn<sub>7.17</sub>Zn<sub>4.95</sub>Fe<sub>4.43</sub><sup>3+</sup>)<sub>Σ=48.00</sub>(Si<sub>61.42</sub>Al<sub>7.69</sub>Fe<sub>2.89</sub><sup>3+</sup>)<sub>Σ=72.00</sub>[O<sub>170.33</sub>(OH)<sub>45.67</sub>]<sub>Σ=216.00</sub>•15.57H<sub>2</sub>O.

**Polymorphism & Series:** Forms a series with franklinphillite.

**Occurrence:** Apparently as both a primary and a late-stage low-temperature hydrothermal mineral in a metamorphosed stratiform zinc deposit.

**Association:** Nelenite, tirodite, franklinite, willemite, sphalerite, dolomite.

**Distribution:** From Franklin, Sussex Co., New Jersey, USA.

**Name:** For the *Lenni Lenape* Indians (*original people* in the Algonquin Indian language) who inhabited the Franklin area.

**Type Material:** Harvard University, Cambridge, Massachusetts, 105542; National Museum of Natural History, Washington, D.C., USA, R582, 140297.

**References:** (1) Dunn, P.J., D.R. Peacor, and W.B. Simmons (1984) Lennilenapeite, the Mg-analogue of stilpnomelane, and chemical data on other stilpnomelane species from Franklin, New Jersey. *Can. Mineral.*, 22, 259–263. (2) (1985) *Amer. Mineral.*, 70, 216 (abs. ref. 1).

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