

# Latrappite

# (Ca, Na)(Nb, Ti, Fe)O<sub>3</sub>

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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As pseudocubic crystals, to 0.5 mm. *Twinning:* Commonly complexly twinned.

**Physical Properties:** Hardness = [5.5] (by analogy to the perovskite group).  
D(meas.) = 4.40–4.42 D(calc.) = 4.457

**Optical Properties:** Opaque. *Color:* Black; dark grayish brown in transmitted light.

*Luster:* [Adamantine.]

*Optical Class:* Biaxial. *Anisotropism:* Moderate.

R<sub>1</sub>–R<sub>2</sub>: n.d.

**Cell Data:** *Space Group:*  $Pcmn$ .  $a = 5.448$   $b = 7.777$   $c = 5.553$   $Z = [4]$

**X-ray Powder Pattern:** Oka complex, Canada.

2.744 (100), 3.887 (79), 1.942 (57), 2.773 (30), 1.579 (25), 1.595 (14), 1.737 (9)

Chemistry:	(1)	(2)	(1)	(2)
U <sub>3</sub> O <sub>8</sub>		< 0.005	MnO	0.77
Nb <sub>2</sub> O <sub>5</sub>	43.90	50.35	PbO	0.01
Ta <sub>2</sub> O <sub>5</sub>		0.55	MgO	2.20
V <sub>2</sub> O <sub>5</sub>		0.11	CaO	25.95
SiO <sub>2</sub>	0.45	0.17	SrO	0.29
TiO <sub>2</sub>	10.05	15.16	BaO	0.03
ZrO <sub>2</sub>		0.85	Na <sub>2</sub> O	4.03
ThO <sub>2</sub>		trace	K <sub>2</sub> O	0.03
Al <sub>2</sub> O <sub>3</sub>		0.08	H <sub>2</sub> O <sup>+</sup>	0.22
RE <sub>2</sub> O <sub>3</sub>	2.03	0.64	S	0.90
Fe <sub>2</sub> O <sub>3</sub>	8.74	4.92	LOI (less S)	0.65
FeO		0.44	Total	99.70
				[100.75]

(1) Oka complex, Canada; total Fe as Fe<sub>2</sub>O<sub>3</sub>, after deduction of diopside and pyrite, corresponds to (Ca<sub>0.75</sub>Na<sub>0.21</sub>RE<sub>0.02</sub>)<sub>Σ=0.98</sub>(Nb<sub>0.54</sub>Ti<sub>0.21</sub>Fe<sub>0.16</sub>Mg<sub>0.08</sub>Mn<sub>0.02</sub>)<sub>Σ=1.01</sub>O<sub>3</sub>.

(2) Badloch quarry, Germany; original total given as 100.65%; corresponds to [Ca<sub>0.55</sub>Na<sub>0.34</sub>Fe<sub>0.01</sub>(RE, Sr, K, Mn)<sub>0.02</sub>]<sub>Σ=0.92</sub>[Nb<sub>0.59</sub>Ti<sub>0.29</sub>Fe<sub>0.10</sub>Zr<sub>0.01</sub>(Ta, Si, Al, V)<sub>0.01</sub>]<sub>Σ=1.00</sub>O<sub>3</sub>(OH)<sub>0.02</sub>.

**Mineral Group:** Perovskite group; Ca<sub>A</sub> > 0.5; Nb<sub>B</sub> > 0.5.

**Occurrence:** In sövite zones of carbonatite complexes.

**Association:** Calcite, apatite, diopside, biotite, pyrochlore, magnetite, niocalite, dolomite, nepheline, monticellite (Oka complex, Canada); columbite (Badloch quarry, Germany).

**Distribution:** From the St. Lawrence Columbian and Metals Corporation mine, near La Trappe, Quebec, Canada. Found in the Badloch quarry, in the Kaiserstuhl, Baden-Württemberg, Germany.

**Name:** For the small community, La Trappe, Quebec, Canada, near the mine from which the first crystals were recovered.

**Type Material:** Royal Ontario Museum, Toronto, Canada, M26143.

**References:** (1) Nickel, E.H. (1964) Latrappite – a proposed new name for the perovskite-type calcium niobate mineral from the Oka area of Quebec. *Can. Mineral.*, 8, 121–122. (2) (1965) *Amer. Mineral.*, 50, 265 (abs. ref. 1). (3) Nickel, E.H. and R.C. McAdam (1963) Niobian perovskite from Oka, Quebec; a new classification for minerals of the perovskite group. *Can. Mineral.*, 7, 683–697. (4) Van Wambeke, L. (1980) Latrappite and ceriopyrochlore, new minerals for the Federal Republic of Germany. *Neues Jahrb. Mineral., Monatsh.*, 171–174.

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