

**Olenite****NaAl<sub>3</sub>Al<sub>6</sub>(BO<sub>3</sub>)<sub>3</sub>(Si<sub>6</sub>O<sub>18</sub>)(O, OH)<sub>4</sub>**

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**Crystal Data:** Hexagonal. *Point Group:* 3*m*. As the outer zone, to 3 mm thick, of acicular crystals with elbaite cores.

**Physical Properties:** Hardness = [~7] (by analogy to the tourmaline group). VHN = 676–820 (100 g load). D(meas.) = 3.010(2) D(calc.) = 3.12

**Optical Properties:** Transparent. *Color:* Pale pink. *Luster:* Vitreous. *Optical Class:* Uniaxial (-). *Pleochroism:* Weak; *O* = bright pink; *E* = pinkish yellow.  $\omega = 1.654(2)$   $\epsilon = 1.635(2)$

**Cell Data:** *Space Group:* R3*m*.  $a = 15.803(3)$   $c = 7.086(1)$   $Z = 3$

**X-ray Powder Pattern:** Oleny Ridge, Russia. 2.551 (100), 3.43 (80), 3.95 (70), 3.394 (70), 4.18 (40), 6.33 (30), 2.021 (30)

<b>Chemistry:</b>	(1)		(1)	
	SiO <sub>2</sub>	36.86	MgO	0.00
	TiO <sub>2</sub>	0.03	CaO	0.26
	B <sub>2</sub> O <sub>3</sub>	[10.90]	Na <sub>2</sub> O	1.60
	Al <sub>2</sub> O <sub>3</sub>	46.43	K <sub>2</sub> O	0.03
	Fe <sub>2</sub> O <sub>3</sub>	0.14	F	0.06
	MnO	0.49	H <sub>2</sub> O	[1.36]
	ZnO	0.03	Total	[98.19]

(1) Oleny Ridge, Russia; by electron microprobe, total Fe as Fe<sub>2</sub>O<sub>3</sub>, B<sub>2</sub>O<sub>3</sub> and H<sub>2</sub>O calculated from stoichiometry, original total given as 98.29%; corresponds to (Na<sub>0.51</sub>Ca<sub>0.05</sub>K<sub>0.01</sub>)<sub>Σ=0.57</sub>(Al<sub>2.91</sub>Mn<sub>0.07</sub>Fe<sub>0.02</sub><sup>3+</sup>Ti<sub>0.01</sub>)<sub>Σ=3.01</sub>Al<sub>6</sub>(BO<sub>3</sub>)<sub>3</sub>Si<sub>6</sub>O<sub>18</sub>[O<sub>2.53</sub>(OH)<sub>1.44</sub>F<sub>0.03</sub>]<sub>Σ=4.00</sub>.

**Mineral Group:** Tourmaline group.

**Occurrence:** In pegmatitic veins crosscutting Precambrian metasediments.

**Association:** Elbaite, quartz, albite, potassic feldspar.

**Distribution:** On the Oleny Ridge, Voroni massif, Kola Peninsula, Russia.

**Name:** For the occurrence on the Oleny Ridge, Russia.

**Type Material:** Mining Institute, St. Petersburg, 580-8/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 87568.

**References:** (1) Sokolov, P.B., M.G. Gorskaya, V.V. Gordienko, M.G. Petrova, Y.L. Kretser, and V.A. Frank-Kamenetskii (1986) Olenite Na<sub>1-x</sub>Al<sub>3</sub>Al<sub>6</sub>B<sub>3</sub>Si<sub>6</sub>O<sub>27</sub>(O, OH)<sub>4</sub> – a new high-alumina mineral of the tourmaline group. Zap. Vses. Mineral. Obshch., 115, 119–123 (in Russian). (2) (1987) Mineral. Abs., 38, 144 (abs. ref. 1). (3) (1988) Amer. Mineral., 73, 441 (abs. ref. 1).