Olenite

\[ \text{NaAl}_3\text{Al}_6(\text{BO}_3)_3\text{Si}_6\text{O}_{18}(\text{O}, \text{OH})_4 \]

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

Physical Properties:  Hardness = [\sim 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: \( R\text{3m} \).  \( a = 15.803(3) \  c = 7.086(1) \  Z = 3 \)

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)

Chemistry:

\[
\begin{array}{ccc}
\text{SiO}_2 & 36.86 & \text{MgO} & 0.00 \\
\text{TiO}_2 & 0.03 & \text{CaO} & 0.26 \\
\text{B}_2\text{O}_3 & [10.90] & \text{Na}_2\text{O} & 1.60 \\
\text{Al}_2\text{O}_3 & 46.43 & \text{K}_2\text{O} & 0.03 \\
\text{Fe}_2\text{O}_3 & 0.14 & \text{F} & 0.06 \\
\text{MnO} & 0.49 & \text{H}_2\text{O} & [1.36] \\
\text{ZnO} & 0.03 & \text{Total} & [98.19] \\
\end{array}
\]

(1) Oleny Ridge, Russia; by electron microprobe, total Fe as \( \text{Fe}_2\text{O}_3 \), \( \text{B}_2\text{O}_3 \) and \( \text{H}_2\text{O} \) calculated from stoichiometry, original total given as 98.29%; corresponds to \( (\text{Na}_{0.51}\text{Ca}_{0.05}\text{K}_{0.01})_{\Sigma = 0.57} \) \( (\text{Al}_{2.91}\text{Mn}_{0.07}\text{Fe}^{3+}_{0.02}\text{Ti}_{0.01})_{\Sigma = 3.01} \text{Al}_6(\text{BO}_3)_3\text{Si}_6\text{O}_{27}(\text{O}, \text{OH})_4 \)  – a new high-alumina mineral of the tourmaline group. Zap. Vses. Mineral. Obshch., 115, 119–123 (in Russian).

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.


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