Pseudosinhalite  \( \text{Mg}_2\text{Al}_3\text{B}_2\text{O}_9(\text{OH}) \)

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Crystal Data:  Monoclinic.  \textit{Point Group:}  \(2/m\).  As a topotactic replacement of sinhalite grains.  \textit{Twinning:}  Polysynthetic on a very fine scale, observed optically.

Physical Properties:  

Optical Properties:  
\textit{Transparent.}  \textit{Color:}  Colorless.  \textit{Streak:}  White.  \textit{Luster:}  Vitreous.  \textit{Optical Class:}  Biaxial (-).  \textit{Orientation:}  \(Z = b\).  \(n = 1.72\)  \(\alpha = 1.691(1)\) (synthetic)  \(\beta = 1.713(1)\)  \(\gamma = 1.730(1)\)  \(2V(\text{meas.}) = 80^\circ\)

Cell Data:  
\textit{Space Group:}  \([P2_1/c]\) (by analogy to synthetic).  \(a = 7.49(1)\)  \(b = 4.33(1)\)  \(c = 9.85(1)\)  \(\beta = 110.7(1)^\circ\)  \(Z = 2\)

X-ray Powder Pattern:  
Tayozhnoye deposit, Russia.  
2.14 (100), 1.625 (100), 2.102 (60), 3.21 (40), 2.61 (40), 1.607 (40), 1.399 (40)

Chemistry:  
\[
\begin{array}{ccc}
\text{B}_2\text{O}_3 & \text{21.75} & 22.30 \\
\text{Al}_2\text{O}_3 & 46.88 & 48.99 \\
\text{FeO} & 1.99 & \\
\text{MgO} & 25.12 & 25.82 \\
\text{H}_2\text{O} & [2.81] & 2.89 \\
\hline 
\text{Total} & [98.55] & 100.00 \\
\end{array}
\]

(1) Tayozhnoye deposit, Russia; by electron microprobe, average of 14 analyses; total Fe as FeO, \(\text{B}_2\text{O}_3\) and \(\text{H}_2\text{O}\) calculated for stoichiometry; corresponds to \((\text{Mg}_{1.98}\text{Fe}_{0.09})\Sigma=2.07\) \(\text{Al}_{2.93}\text{B}_{2.00}\text{O}_9(\text{OH})\).  (2) \(\text{Mg}_2\text{Al}_3\text{B}_2\text{O}_9(\text{OH})\).

Occurrence:  
A rare mineral in a contact-metasomatic boron-rich iron deposit, a product of retrograde alteration of sinhalite in magnesium-bearing skarn.

Association:  
Forsterite, spinel, ludwigite, warwickite, suanite, szaiélyite, brucite, clinohumite, sinhalite, hydrotalcite.

Distribution:  
From the Tayozhnoye iron deposit, 550 km south of Yakutsk, Sakha, Russia.

Name:  
From the Greek for false, in recognition of its close relation to sinhalite.

Type Material:  
Institute for Mineralogy, Ruhr University, Bochum, Germany.

References:  