Lazarenkoite

$\text{Fe}^{2+}\text{Fe}^{3+}\text{As}^{3+}_3\text{O}_7\cdot3\text{H}_2\text{O}$


Physical Properties: Hardness = 1 D(meas.) = 3.450(5) D(calc.) = 3.59


Optical Class: Biaxial (−). Pleochroism: Strong; X = pale yellow; Y = pale brown; Z = rose-brown. \(\alpha = 1.820(3)\) \(\beta = 1.920(3)\) \(\gamma = 1.955(3)\) 2V(meas.) = \(\sim30^\circ\)

Cell Data: Space Group: n.d. \(a = 21.80\) \(b = 12.64\) \(c = 8.40\) \(Z = 10\)

X-ray Powder Pattern: Khovu-Aksy deposit, Russia.

Chemistry:

\begin{align*}
\text{Fe}_2\text{O}_3 & \quad 16.7 \\
\text{As}_2\text{O}_3 & \quad 61.5 \\
\text{FeO} & \quad 5.6 \\
\text{MgO} & \quad 0.7 \\
\text{CaO} & \quad 5.1 \\
\text{H}_2\text{O} & \quad 12.2 \\
\text{Total} & \quad 101.8
\end{align*}

(1) Khovu-Aksy deposit, Russia; average of two analyses, absence of arsenate and arsenite and presence of H$_2$O shown by IR; corresponding to \((\text{Ca}_{0.44}\text{Fe}_{0.38}\text{Mg}_{0.09})\Sigma=0.91\) \(\text{Fe}^{3+}_{1.02}\text{As}^{3+}_{9.04}\text{O}_7\cdot3.32\text{H}_2\text{O}\).

Occurrence: In the oxidation zone of a metallic ore deposit.

Association: Annabergite, skutterudite, löllingite.

Distribution: From the Khovu-Aksy Ni–Co deposit, Tuva, Siberia, Russia.

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