Dietrichite  
\((\text{Zn}, \text{Fe}^{2+}, \text{Mn}^{2+})\text{Al}_2(\text{SO}_4)_4 \cdot 22\text{H}_2\text{O})\)

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Crystal Data: Monoclinic. Point Group: \(2/m\). Fibrous, in tufted aggregates; as incrustations and efflorescences.


Optical Properties: Transparent. Color: Dirty white to brownish yellow; colorless in transmitted light. Luster: Silky. Optical Class: Biaxial (+). Orientation: \(X = b\); \(Z \perp c \simeq 29^\circ\).  \(\alpha = 1.475(3)\)  \(\beta = 1.480(3)\)  \(\gamma = 1.488(3)\)  2\(V\)(meas.) = Large.

Cell Data: Space Group: \(P2_1/c\).  \(a = 6.240\)  \(b = 24.434\)  \(c = 21.379\)  \(\beta = 100.1^\circ\)  \(Z = 4\)

X-ray Powder Pattern: Baia Sprie, Romania. (ICDD 25-1173). 4.33 (100), 4.84 (40), 4.99 (30), 4.15 (30), 4.20 (20), 6.09 (15), 4.64 (15)

Chemistry:

\[
\begin{array}{ll}
\text{SO}_3 & 35.94 \\
\text{Al}_2\text{O}_3 & 10.92 \\
\text{FeO} & 3.11 \\
\text{MnO} & 1.74 \\
\text{ZnO} & 3.70 \\
\text{MgO} & 0.33 \\
\text{H}_2\text{O} & 44.38 \\
\hline
\text{Total} & 100.12 \\
\end{array}
\]

(1) Baia Sprie, Romania; corresponds to 
\((\text{Zn}_{0.40}\text{Fe}_{0.38}\text{Mn}_{0.22})\Sigma=1.00\text{Al}_{1.91}(\text{SO}_4)_{4.00} \cdot 21.95\text{H}_2\text{O}\).

Mineral Group: Halotrichite group.

Occurrence: As post-mining efflorescences in abandoned mine workings.

Distribution: From Baia Sprie (Felsőbánya), Romania.

Name: To honor Dr. Gustav Heinrich Dietrich, Příbram, Czech Republic, who analyzed the first specimens.

Type Material: Royal Ontario Museum, Toronto, Canada, M7078.