Bieberite

\( \text{CoSO}_4 \cdot 7\text{H}_2\text{O} \)

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Crystal Data: Monoclinic. Point Group: \( 2/m \). As stalactites and crusts of minute crystals.

Physical Properties: Cleavage: On \( \{001\} \), perfect; on \( \{110\} \), fair. Hardness = 2
\( D(\text{meas.}) = 1.96 \quad D(\text{calc.}) = 1.942 \) Soluble in \( \text{H}_2\text{O} \); easily dehydrates to the hexahydrate.

Optical Class: Biaxial (-). Orientation: \( Y = b \); \( Z \wedge c = 29^\circ 18' \). \( \alpha = 1.475–1.477 \)
\( \beta = 1.482–1.483 \quad \gamma = 1.488–1.489 \) \( 2V(\text{meas.}) = 88^\circ 01' \)

Cell Data: Space Group: \( P_{21}/c \) (synthetic). \( a = 14.040 \quad b = 6.495 \quad c = 10.923 \)
\( \beta = 105.27^\circ \quad Z = 4 \)

4.87 (100), 3.76 (75), 4.82 (55), 2.725 (25), 3.71 (20), 4.02 (14), 3.25 (14)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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</thead>
<tbody>
<tr>
<td>( \text{P}_2\text{O}_5 )</td>
<td>29.05</td>
<td>28.48</td>
</tr>
<tr>
<td>( \text{CoO} )</td>
<td>19.91</td>
<td>26.66</td>
</tr>
<tr>
<td>( \text{MgO} )</td>
<td>3.86</td>
<td></td>
</tr>
<tr>
<td>( \text{H}_2\text{O} )</td>
<td>46.83</td>
<td>44.86</td>
</tr>
<tr>
<td>Total</td>
<td>99.65</td>
<td>100.00</td>
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</table>

(1) Bieber, Germany. (2) \( \text{CoSO}_4 \cdot 7\text{H}_2\text{O} \).

Mineral Group: Melanterite group.


Association: Erythrite, annabergite, pharmacolite, cobaltite, linnaeite.

Distribution: In Germany, from Bieber, near Hanau, Hesse; at Siegen, Westphalia; from Wittichen, Black Forest. At Leogang, and in the Rauris Valley, Salzburg, Austria. In the Penberthy Croft mine, St. Hilary, and at Wheal Alfred, Phillack, Cornwall, England. From Minas de Riotintó, Huelva Province, Spain. At Chalanches, Isère, France. In the Dome Rock copper mine, South Australia. From the Copper King mine, Lomagundi district, Zimbabwe. At Island Mountain, Trinity Co., California; from Ajo, Pima Co., Arizona; and in the Dolly prospect, Emery Co., Utah, USA. From Tres Puntos, near Copiapó, Atacama, Chile.

Name: For its first-noted occurrence at Bieber, Germany.