Cobalttsumcorite  \( \text{PbCo}_2(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O} \)

**Crystal Data:** Monoclinic.  
Point Group: 2/m.  
As rosette-like aggregates, to 2 mm, tabular crystals are elongate along [010] to 0.3 mm.

**Physical Properties:** Cleavage: Good on {001}.  
Fracture: Conchoidal.  
Tenacity: Brittle.  
Hardness = 4.5  
D(meas.) = n.d.  
D(calc.) = 5.31  
Soluble in warm dilute HCl.

**Optical Properties:** Transparent.  
Color: Brown to yellow.  
Streak: Light brown.  
Luster: Adamantine.  
Optical Class: Biaxial (+).  
\( \alpha(\text{calc.}) = 1.92 \quad \beta = 1.94(1) \quad \gamma = 1.98(2) \)  
2V(meas.) = 75(5)°

**Cell Data:** Space Group: C2/m.  
\( a = 9.097(2) \quad b = 6.313(2) \quad c = 7.555(3) \quad \beta = 115.08(2)^\circ \quad Z = 2 \)

**X-ray Powder Pattern:** Saxony, Germany.  
3.243 (100), 4.462 (96), 4.656 (87), 3.010 (58), 2.868 (50), 2.733 (47), 2.538 (40)

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NiO</td>
<td>5.20</td>
</tr>
<tr>
<td>CoO</td>
<td>9.10</td>
</tr>
<tr>
<td>ZnO</td>
<td>0.52</td>
</tr>
<tr>
<td>PbO</td>
<td>34.23</td>
</tr>
<tr>
<td>Al_2O_3</td>
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<tr>
<td>Fe_2O_3</td>
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<tr>
<td>P_2O_5</td>
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<tr>
<td>As_2O_3</td>
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<tr>
<td>SO_3</td>
<td>0.09</td>
</tr>
<tr>
<td>H_2O</td>
<td>[4.65]</td>
</tr>
<tr>
<td>Total</td>
<td>99.10</td>
</tr>
</tbody>
</table>

(1) Saxony, Germany; average electron microprobe analysis, H_2O calculated; corresponds to Pb_0.97(Co_0.77:Fe_0.23)Ni_0.04Zn_0.04Al_0.04)\_2\_1.96(AsO_4)_2\_0.01[(H_2O)]\_1.22(OH)_0.64]\_2\_1.96.

**Mineral Group:** Tsumcorite-group.

**Occurrence:** In the oxidation zone of polymetallic ore deposits.

**Association:** Quartz, mawbyite, cobaltlotharmeyerite, galena, arseniosiderite, plumbogummite.

**Distribution:** In dump material from the Am Roten Berg mine, 4.8 km southwest of Scheeberg, Saxony, Germany.

**Name:** The prefix, *cobalt*, indicates the cobalt analog of *tsumcorite*.

**Type Material:** Freiberg University of Mining and Technology, Saxony, Germany.