Amarantite  \(\text{Fe}_2^{3+}\text{O(SO}_4\text{)}_2\cdot7\text{H}_2\text{O}\)

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**Crystal Data:** Triclinic.  *Point Group:* \(\overline{1}\).  Crystals, to 2 cm, elongated along [001], with dominant \{100\} and \{010\}, and square cross section; also flattened [100] and striated on \{001\}; more than 60 forms recorded; typically in radiating or matted aggregates of needles; columnar or bladed.

**Physical Properties:**  *Cleavage:* Perfect on \{010\} and \{100\}.  *Tenacity:* Brittle.  
Hardness = 2.5  \(D(\text{meas.})=2.189-2.286\)  \(D(\text{calc.})=2.14\)  Decomposes in \(\text{H}_2\text{O}\), leaving an insoluble residue.

**Optical Properties:**  *Transparency:* Transparent.  *Color:* Amaranth-red to brownish red and red-orange.  

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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<tbody>
<tr>
<td>(\text{SO}_3)</td>
<td>36.18</td>
<td>35.91</td>
</tr>
<tr>
<td>(\text{Fe}_2\text{O}_3)</td>
<td>35.92</td>
<td>35.81</td>
</tr>
<tr>
<td>(\text{H}_2\text{O})</td>
<td>28.13</td>
<td>28.28</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100.23</strong></td>
<td><strong>100.00</strong></td>
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</tbody>
</table>

(1) Paposa, Chile.  (2) \(\text{Fe}_2\text{O(SO}_4\text{)}_2\cdot7\text{H}_2\text{O}\).

**Occurrence:**  A secondary mineral formed especially in arid climates.

**Association:** Hohmannite, fibroferrite, chalcanthite, copiapite, coquimbite, sideronatrite.

**Distribution:** In Chile, in Antofagasta, from the Union mine, Reventon district, near Paposo, at the Compania mine, east of Sierra Gorda; from Quetena, west of Calama, Alcaparrosa, near Cerritos Bayos, southwest of Calama, and at Chuquicamata; at Tierra Amarilla, southeast of Copiapó, Atacama. In the USA, in the Santa Maria Mountains, Riverside Co., California. At Saghand, Yazd, Iran.

**Name:** From the Greek for *amaranth*, an imaginary purplish red undying flower, for its color.

**Type Material:** BAF, 44700.


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