Barbosalite

\[ \text{Fe}^{2+}\text{Fe}^{3+}_2(\text{PO}_4)_2(\text{OH})_2 \]

\( \text{(C)2001-2005 Mineral Data Publishing, version 1} \)

Crystal Data: Monoclinic, pseudotetragonal. Point Group: 2/m. As stout prismatic to pseudocubic crystals, may have a mosaic texture, to 0.25 mm; generally as microcrystalline to powdery coatings. Twinning: Contact twins with (001) as composition surface.

Physical Properties: Hardness = 6 D(meas.) = 3.60–3.62 D(calc.) = 3.71


Dispersion: r > v, strong. Absorption: Strong; X = Y > Z. \( \alpha = 1.76–1.78 \quad \beta = 1.77–1.81 \quad \gamma = 1.835–1.84 \quad 2V(\text{meas.}) = 64^\circ \).

Cell Data: Space Group: \( P_2_1/c \). \( a = 7.25 \quad b = 7.46 \quad c = 7.49 \quad \beta = 120^\circ 15^\prime \quad Z = 2 \)

X-ray Powder Pattern: Sapucaia mine, Brazil. 3.361 (10), 3.313 (8), 4.84 (6), 3.239 (6), 3.160 (6), 2.327 (4), 1.309 (4)

Chemistry: (1) (2)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Fe}_2\text{O}_3 )</td>
<td>40.92</td>
<td>40.79</td>
</tr>
<tr>
<td>( \text{FeO} )</td>
<td>18.38</td>
<td>18.35</td>
</tr>
<tr>
<td>( \text{MnO} )</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>( \text{P}_2\text{O}_5 )</td>
<td>36.07</td>
<td>36.26</td>
</tr>
<tr>
<td>( \text{H}_2\text{O} ) [4.33]</td>
<td>4.60</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>[100.00]</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Criminoso mine, Brazil; by electron microprobe, \( \text{Fe}^{2+}:\text{Fe}^{3+} \) from stoichiometry, \( \text{H}_2\text{O} \) by difference. (2) \( \text{Fe}^{2+}\text{Fe}_2^{3+}(\text{PO}_4)_2(\text{OH})_2 \).

Mineral Group: Lazulite group.

Mineral Group: Dimorphous with lipscombite.

Occurrence: In complex granitic pegmatites, formed by oxidation and hydration of primary phosphates.

Association: Tavorite, luréaulite, heterosite, triphylite, vivianite, roscherite, rockbridgeite.

Distribution: In Brazil, in Minas Gerais, at the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, and in good crystals from the Criminoso pegmatite mine, about 35 km north of São José da Safira, Agua Boa. In the USA, at the Palermo #1 mine, near North Groton, Grafton Co., New Hampshire; from the Bull Moose and Tip Top mines, near Custer, Custer Co., South Dakota; at the Williams pegmatite, Coosa Co., Alabama. In Australia, from Wilson’s quarry, Thackaringa district, 40 km southwest of Broken Hill, New South Wales, and in the Wiperaminga Hill West quarry, Boolcoomatta, South Australia. From the Buranga pegmatite, near Gatumba, Rwanda. At the Angurf-Sud pegmatite, Tazenakht Plain, Morocco. In the Mangualde pegmatite, near Mesquita, Portugal.

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