**Santarosaites**

**CuB$_2$O$_4$**

**Crystal Data:** Tetragonal.  
*Point Group:* $4 2m$.  
As globules of leaf-like crystals, to 0.06 mm.

**Physical Properties:**  
*Cleavage:* n.d.  
*Fracture:* n.d.  
*Tenacity:* n.d.  
*Hardness:* n.d.  
*D(meas.):* n.d.  
*D(calc.):* 3.96

**Optical Properties:**  
*Translucent.*  
*Color:* Vivid blue.  
*Streak:* Pale blue.  
*Luster:* Vitreous.  
*Optical Class:* n.d.  
$n = 1.75$ (calculated from reflectance data).

**Cell Data:**  
*Space Group:* $I4 2d$.  
$a = 11.517(8)$  
$c = 5.632(6)$  
$Z = 12$

**X-ray Powder Pattern:** Santa Rosa mine, Northern Chile.

3.797 (100), 3.638 (47), 2.775 (35), 2.572 (26), 2.501 (26), 1.822 (21), 1.793 (20)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuO</td>
<td>43.24</td>
<td>53.33</td>
</tr>
<tr>
<td>PbO</td>
<td>4.48</td>
<td></td>
</tr>
<tr>
<td>CaO</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td>B$_2$O$_4$</td>
<td>45.44</td>
<td>46.67</td>
</tr>
<tr>
<td>Total</td>
<td>94.13</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Santa Rosa mine, Northern Chile; average of 17 electron microprobe and EELS analyses, BO$_4$ and absence of other anionic groups confirmed by IR and Raman spectroscopy, corresponding to (Cu$_{0.86}$Pb$_{0.03}$Ca$_{0.03}$)B$_{2.06}$O$_4$.  
(2) CuB$_2$O$_4$.

**Occurrence:** In the oxidation zone of a hydrothermal polymetallic vein deposit.

**Association:** Atacamite, malachite, wulfenite, anhydrite.

**Distribution:** Santa Rosa mine, 15 km SE of Iquique, Atacama desert, Northern Chile.

**Name:** Named for the mine that produced the first specimens.

**Type Material:** Mineralogical Museum, University of Hamburg, Germany.

**References:**  