Peterbaylissite \( \text{Hg}^{1+}(\text{CO}_3)(\text{OH})\cdot2\text{H}_2\text{O} \)

Crystal Data: Orthorhombic, pseudotetragonal. Point Group: \( 2/m 2/m 2/m \). Euhedral to subhedral crystals, to 0.2 mm, elongated parallel [001], wedgelike, may be platy; isolated and in clusters.

D(meas.) = n.d. D(calc.) = 7.14


Cell Data: Space Group: \( P cab \). \( a = 11.130(2) \), \( b = 11.139(3) \), \( c = 10.725(3) \) \( Z = 8 \)

X-ray Powder Pattern: Clear Creek claim, California, USA.
2.648 (100), 2.969 (70), 2.786 (70), 2.419 (60), 4.84 (50), 6.35 (40), 4.95 (40)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO(_2)</td>
<td>n.d.</td>
<td>6.16</td>
</tr>
<tr>
<td>Hg(_2)O</td>
<td>87.4</td>
<td>87.54</td>
</tr>
<tr>
<td>H(_2)O</td>
<td>n.d.</td>
<td>6.30</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

(1) Clear Creek claim, California, USA; by electron microprobe, average of two analyses;
\((\text{CO}_3)^{2-}\), \((\text{OH})^{1-}\), \text{H}_2\text{O}, confirmed by IR, the chemical formula determined by crystal-structure analysis. (2) \text{Hg}_3(\text{CO}_3)(\text{OH})\cdot2\text{H}_2\text{O}.

Polymorphism & Series: Dimorphous with clearcreekite.

Occurrence: Very rare in a mercury deposit in silicate–carbonate rock, hydrothermally altered from serpentinite, probably formed as an alteration product of cinnabar.

Association: Ferroan magnesiochromite, ferroan magnesite, cinnabar, metacinnabar, mercury, quartz.

Distribution: From near the Clear Creek mercury mine, New Idria district, San Benito Co., California, USA.

Name: Honoring Dr. Peter Bayliss (1936– ), Professor of Mineralogy, University of Calgary, Calgary, Canada, for his many contributions to mineralogy.


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