Dessauite  \( (\text{Sr}, \text{Pb})(\text{Y}, \text{U})(\text{Ti}, \text{Fe}^{3+})_{20}\text{O}_{38}) \)

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Crystal Data:  Tetragonal.  \textbf{Point Group:}  \(4mm\).  Crystals tabular on \{001\}, exhibiting square or octagonal outline with vicinal forms, rarely showing pyramidal hemihedralism, to 4 cm; in subparallel aggregates; massive.

Physical Properties:  \textbf{Cleavage:}  \{001\}, perfect.  \textbf{Fracture:}  Conchoidal.  \textbf{Tenacity:}  Brittle.  \textbf{Hardness} = 2.5  \(D(\text{meas.}) = 5.42\)  \(D(\text{calc.}) = 5.48\)


Optical Class:  Uniaxial (–).  \textbf{Absorption:}  \(O > E\), in thick fragments.  \(\omega = 1.98(1)\)  \(\epsilon = 1.85(1)\)

Cell Data:  \textbf{Space Group:}  \(P4mm\).  \(a = 5.880(1)\)  \(c = 5.500(2)\)  \(Z = 1\)

X-ray Powder Pattern:  Tiger, Arizona, USA.

5.51 (10), 2.283 (10), 3.305 (9), 2.580 (9), 1.755 (9), 1.537 (9), 2.929 (8)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{CuO})</td>
<td>12.90</td>
<td>12.68</td>
<td>12.90</td>
</tr>
<tr>
<td>(\text{PbO})</td>
<td>72.09</td>
<td>72.01</td>
<td>72.36</td>
</tr>
<tr>
<td>(\text{Cl})</td>
<td>10.89</td>
<td>11.42</td>
<td>11.49</td>
</tr>
<tr>
<td>(\text{H}_2\text{O})</td>
<td>6.14</td>
<td>6.03</td>
<td>5.84</td>
</tr>
<tr>
<td>insol.</td>
<td>0.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-\text{O} = \text{Cl})</td>
<td>2.46</td>
<td>2.57</td>
<td>2.59</td>
</tr>
</tbody>
</table>

Total 99.56 99.76 100.00

(1) Mendip Hills, England; corresponding to \(\text{Pb}_{2.19}\text{Cu}_{1.06}\text{Cl}_{2.96}(\text{OH})_{4.44}\).  (2) Tiger, Arizona, USA; corresponding to \(\text{Pb}_{1.98}\text{Cu}_{0.98}\text{Cl}_{1.98}(\text{OH})_{4.01}\).  (3) \(\text{Pb}_2\text{CuCl}_2(\text{OH})_4\).

Occurrence:  In oxidized manganese ores (Mendip Hills, England); a secondary mineral in deeply oxidized Pb–Cu ores (Tiger, Arizona, USA); in slag exposed to seawater.

Association:  Chloroxiphite, hydrocerussite, mendipite, cerussite (Mendip Hills, England); boleite, wherryite, hydrocerussite, leadhillite, phosgenite, caledonite, atacamite, paratacamite, cerussite (Tiger, Arizona, USA).

Distribution:  In England, at the Higher Pitts Farm, Mendip Hills, and the Merehead quarry, near Shepton Mallet, Somerset; at Padstow Consols, Padstow, Cornwall. In Germany, from the Christian-Levin mine, near Essen, North Rhine-Westphalia, and from Richelsdorf, Hesse, in slag. Along Baratti Beach, Tuscany, Italy, in slag. At Laurium, Greece, in slag. In the USA, exceptional crystals from the Mammoth-St. Anthony mine, Tiger, Pinal Co., and from the Rowley mine, Maricopa Co., Arizona. In Iran, in the Tchah Khuni and other mines in the Anarak district; the Seh-Changi mine, near Neyband, Khorassan; and at Abdol Abad, Tabas. From Moolyella, and at the Antcline prospect, 11 km west-southwest of Ashburton Downs homestead, Capricorn Range, Western Australia. In the Santa Ana mine, near Caracoes, Sierra Gorda district, Antofagasta, Chile. Found at an undefined locality in the Kopet-Dag Range, Cheleken Peninsula, Russia.

Name:  From the Greek for separate from, and the related mineral boleite.


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