Buseckite

(Fe,Zn,Mn)S

Crystal Data: Hexagonal.  Point Group: 6mm.  As irregular grains to 20 μm.


Cell Data: Space Group: P6₃mc.  a = 3.8357  c = 6.3002  Z = 2

X-ray Powder Pattern: Calculated pattern.
3.322 (100), 2.938 (90), 1.918 (76), 1.775 (76), 3.150 (62), 1.638 (48), 2.286 (36)

Chemistry:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe</td>
<td>28.68</td>
</tr>
<tr>
<td>Zn</td>
<td>23.54</td>
</tr>
<tr>
<td>Mn</td>
<td>10.04</td>
</tr>
<tr>
<td>Mg</td>
<td>1.18</td>
</tr>
<tr>
<td>Total</td>
<td>99.28</td>
</tr>
</tbody>
</table>

(1) Zakłodzie meteorite; average of 14 electron microprobe analyses supplemented by micro-Raman spectroscopy; corresponds to (Fe₀.₄₆Zn₀.₃₂Mn₀.₁₆Mg₀.₀₄)Σ=₀.₉₉S₁.₀₁.

Mineral Group: Wurtzite group.

Occurrence: In an enstatite-rich achondrite meteorite, likely derived from the breakdown of high-temperature pyrrhotite to form troilite and buseckite after the solidification of sulfide-rich liquids produced by impact melting of an enstatite-rich rock.

Association: Enstatite, plagioclase, troilite, tridymite, quartz, sinoite, low-Ni iron, martensitic iron, schreibersite, keilite, cristobalite, graphite.

Distribution: From the Zakłodzie meteorite.

Name: Honors Peter R. Buseck (b. 1935) for his contributions to mineralogy, meteorite research, and transmission electron microscopy.
