Wesselsite  
\[ \text{SrCuSi}_4\text{O}_{10} \]

**Crystal Data:** Tetragonal.  
*Point Group: 4\(\overline{1}\)m 2\(\overline{1}\)m 2\(\overline{1}\)m.*  
As plates, to 50 \(\mu\)m, typically in clusters to 200 \(\mu\)m.

**Physical Properties:**  
*Cleavage:* Perfect on \{001\}.  
*Fracture:* n.d.  
*Tenacity:* Brittle.  
*Hardness:* n.d.  
*D(meas.):* 3.2(1)  
*D(calc.):* 3.3

**Optical Properties:** Translucent.  
*Color:* Blue.  
*Streak:* White to light blue.  
*Luster:* n.d.  
*Optical Class:* Uniaxial (-).  
\(\omega = 1.630(2)\)  
\(\varepsilon = 1.590(5)\)  
*Pleochroism:* Strong, blue to pale blue to pink.

**Cell Data:**  
*Space Group:* \(P4/\overline{1}\)nc.  
\[ a = 7.374(1) \quad c = 15.636(2) \quad Z = 4 \]

**X-ray Powder Pattern:**  
Wessels mine, Northern Cape Province, South Africa.  
3.33 (100), 3.12 (55), 3.03 (50), 3.44 (40), 7.79 (35), 2.61 (30), 2.32 (30)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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</thead>
<tbody>
<tr>
<td>SrO</td>
<td>24.0</td>
<td>24.47</td>
</tr>
<tr>
<td>CuO</td>
<td>18.8</td>
<td>18.78</td>
</tr>
<tr>
<td>SiO(_2)</td>
<td>56.9</td>
<td>56.75</td>
</tr>
<tr>
<td>Total</td>
<td>99.7</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Wessels mine, Northern Cape Province, South Africa; electron microprobe analysis, corresponds to \(\text{Sr}_{0.98}\text{Cu}_{1.00}\text{Si}_{1.00}\text{O}_{10}\).  
(2) \(\text{SrCuSi}_4\text{O}_{10}\).  
(3) Wessels mine, Northern Cape Province, South Africa; electron microprobe analysis of crystal used for structure determination, no analysis given; corresponds to \(\text{Sr}_{0.90}\text{Ba}_{0.10}\text{Cu}_{1.00}\text{Si}_{4.00}\text{O}_{10}\).

**Polymorphism & Series:** Forms a solid solution series with effenbergerite.

**Mineral Group:** Gillespite group.

**Occurrence:** In a hydrothermally-Altered sedimentary manganese deposit.

**Association:** Hennomartinite, sugulite, pectolite, xenotlite, quartz.

**Distribution:** From the central-eastern ore body of the Wessels mine, Kalahari Manganese Field, Northern Cape Province, South Africa.

**Name:** Named for the Wessels mine, South Africa, where the first specimens were collected.

**Type Material:** Institute for Mineralogy and Crystallography, University of Vienna, Austria (8H/01.055#1).

**References:**

(2) Rieck, B., H. Pristacz, and G. Giester (2015) Colinowensite, \(\text{BaCuSi}_2\text{O}_6\), a new mineral from the Kalahari Manganese Field, South Africa and new data on wesselsite, \(\text{SrCuSi}_4\text{O}_{10}\). Mineral. Mag., 79(7), 1769-1778.  