Dalnegroite

\[\text{Tl}_{5-x}\text{Pb}_{2x}(\text{As},\text{Sb})_{21-x}\text{S}_{34}\]

**Crystal Data:** Triclinic.  
**Point Group:** n.d.  
As imperfect acicular crystals, to 0.03 mm; in sheaflike sub-parallel aggregates.

**Physical Properties:**  
Cleavage: none discernable.  
Fracture: Uneven.  
Tenacity: Brittle.  
Hardness = 3-3.5  
VHN = 87 (25 g load).  
D(meas.) = n.d.  
D(calc.) = 4.82

**Optical Properties:**  
Opaque.  
Color: Dark gray.  
Streak: Brownish-red.  
Luster: Submetallic.  
Anisotropism: Strong, bluish to green, red internal reflections.  
Bireflectance: Strong.  
Pleochroism: Weak, white to slightly greenish gray.

**Optical Class:** n.d.

**Cell Data:**  
Space Group: \(P1\) (probable).  
\(a = 16.217(7)\)  
\(b = 42.544(9)\)  
\(c = 8.557(4)\)  
\(\alpha = 95.72(4)°\)  
\(\beta = 90.25(4)°\)  
\(\gamma = 96.78(4)°\)  
Z = 4

**X-ray Powder Pattern:**  
Lengenbach quarry, Binntal, Switzerland.  
3.927 (100), 2.850 (70), 2.929 (60), 2.097 (60), 3.620 (50), 3.124 (50), 3.775 (45)

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td>10.09</td>
<td></td>
</tr>
<tr>
<td>Sb</td>
<td>23.95</td>
<td></td>
</tr>
<tr>
<td>Tl</td>
<td>20.36</td>
<td></td>
</tr>
<tr>
<td>As</td>
<td>21.38</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>26.16</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101.94</td>
<td></td>
</tr>
</tbody>
</table>

(1) Lengenbach quarry, Binntal, Switzerland; average of 11 electron microprobe analyses, corresponding to \(\text{Tl}_{4.15}\text{Pb}_{2.03}(\text{As}_{11.86}\text{Sb}_{8.20})\text{S}_{34}\).

**Occurrence:**  
Of hydrothermal origin in dolomitic marble.

**Association:**  
Realgar, pyrite, Sb-rich hutchinsonite, jordanite, Sb-rich seligmanite, sinnerite.

**Distribution:**  
Lengenbach quarry, Binntal, Switzerland.

**Name:**  
Honors Alberto Dal Negro (b. 1941), Professor in Mineralogy and Crystallography at the University of Padova, Italy, since 1976.

**Type Material:**  
Museum of Mineralogy, Department of Geosciences, University of Padova, Italy (catalog no. MMP M7620).

**References:**  
(1) Nestola, F., A. Guastoni, L. Bindi, and L. Secco (2009) Dalnegroite, \(\text{Tl}_{5-x}\text{Pb}_{2x}(\text{As},\text{Sb})_{21-x}\text{S}_{34}\), a new thallium sulfosalts from Lengenbach quarry, Binntal, Switzerland.  
Mineral. Mag., 73, 1027–1032.  
(2) (2010) Amer. Mineral., 95, 1359 (abs. ref. 1).