Neltnerite  CaMn\(^{3+}\)SiO\(_{12}\)

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Crystal Data: Tetragonal.  
Point Group: 4/m 2/m 2/m.  
Rarely as dipyramidal crystals, to 1 mm; as small grains.

Physical Properties:  
Fracture: Subconchoidal.  
Hardness = 6  
VHN = 1200–1220 (100 g load).  
D(meas.) = 4.63(5)  
D(calc.) = 4.65

Optical Properties:  
Opaque.  
Color: Black; in reflected light, gray to brownish gray.  
Luster: Submetallic.  
Anisotropism: Weak.

R\(_1\)–R\(_2\):  
\((470)\) 21.3–22.3,  
\((546)\) 19.2–20.2,  
\((589)\) 18.5–19.5,  
\((650)\) 17.65–18.65

Cell Data:  
Space Group: I\(_4\)/acd.  
a = 9.464  
c = 18.854  
Z = 8

X-ray Powder Pattern:  
Tachgagalt, Morocco.

2.728 (10), 1.672 (8.5), 1.427 (6), 1.085 (5), 1.0595 (4.5), 1.056 (4.5), 2.364 (3)

Chemistry:  
(1)

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<table>
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<tbody>
<tr>
<td>SiO(_2)</td>
<td>10.16</td>
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<tr>
<td>Fe(_2)O(_3)</td>
<td>1.29</td>
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<tr>
<td>Mn(_2)O(_3)</td>
<td>78.94</td>
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<tr>
<td>CaO</td>
<td>8.94</td>
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<tr>
<td>Total</td>
<td>99.33</td>
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(1) Tachgagalt, Morocco; by electron microprobe, average of 14 analyses; corresponds to  
\((\text{Ca}_{0.95}\text{Mn}_{0.06})\text{Mn}^{2+}_{-1.01}(\text{Mn}_{3+}^{3+}\text{Fe}_{0.10}^{3+})\text{Si}_{5.99}\text{Si}_{1.01}\text{O}_{12}\).

Occurrence:  
In a vein with minerals containing manganese and calcium (Tachgagalt, Morocco).

Association:  
Braunite, marokite, crednerite (Tachgagalt, Morocco).

Distribution:  
At Tachgagalt, Anti-Atlas Mountains, Morocco.  
From Manganese Creek Falls, Keeweenaw Co., Michigan, USA.

Name:  
For Louis Neltner, pioneer student of mineral deposits of the High Atlas Mountains, Morocco.

Type Material:  
National School of Mines, Paris, France.

References:  