Manganiandrosite-(Ce)  

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Weight</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>29.04</td>
<td>29.04</td>
<td>29.04</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>8.20</td>
<td>8.20</td>
<td>8.20</td>
</tr>
<tr>
<td>TiO₂</td>
<td>1.26</td>
<td>1.26</td>
<td>1.26</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>2.98</td>
<td>2.98</td>
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<tr>
<td>MnO</td>
<td>15.01</td>
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</tr>
<tr>
<td>Mn₂O₃</td>
<td>11.62</td>
<td>11.62</td>
<td>11.62</td>
</tr>
<tr>
<td>MgO</td>
<td>0.28</td>
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<tr>
<td>SrO</td>
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<tr>
<td></td>
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<td>96.59</td>
</tr>
</tbody>
</table>

**Crystal Data:**  

Monoclinic.  

**Point Group:** 2/m.  

As elongated grains to 0.1 mm.

**Physical Properties:**  

Cleavage: None.  

Fracture: n.d.  

Tenacity: Brittle.  

Hardness = n.d.  

D(meas.) = n.d.  

D(calc.) = 4.21-4.31

**Optical Properties:**  

Transparent.  

Color: Dark brown.  

Streak: Reddish brown.  

Luster: Vitreous to adamantine.  

Optical Class: Biaxial (+).  

α > 1.74  

n(calc.) = 1.80  

2V(meas.) = 80.6(1.5)°  

2V(calc.) = n.d.

**Orientation:** n.d.

Pleochroism: Strong, X = light yellow, Y = orange-brown, Z = red-brown.

**Dispersion:** None.

**Cell Data:**  

Space Group: P2₁/m.  

a = 8.901(2)  

b = 5.738(1)  

c = 10.068(2)  

β = 113.425(3)°  

Z = 2

**X-ray Powder Pattern:** Praborna Mn deposit, Saint-Marcel, Val d’Aosta, Italy. [calculated pattern]  

2.8964 (100), 2.6225 (53), 3.5141 (41), 2.7134 (39), 2.7069 (39), 2.8690 (35), 7.8639 (28)

**Mineral Group:** Epidote group, allanite subgroup.

**Occurrence:** In metamorphosed (eclogite facies) lenses near Mn deposits associated with ophiolite.

**Association:** Tephroite, Mn-pyroxenoid, hematite, calderite; or spessartine, calderite, hematite, pyrophanite.

**Distribution:** From the dumps of the Praborna Mn deposit, Saint-Marcel, Val d’Aosta, Italy.

**Name:** The Ce analogue of manganiandrosite-(La). An epidote-group mineral in which Mn²⁺ is dominant in A1, REE are dominant in A2, Mn³⁺ in M1, Al in M2, and in which Mn²⁺ is the dominant charge-compensating (i.e. divalent) cation in M3.

**Type Material:** Mineral Museum, School of Mines, Paris, France, (73951).


(2) Amer. Mineral., 92, 704-705 (abs. ref. 1).