**Florencite-(Sm) (Sm,Nd)Al₃(PO₄)₂(OH)₆**

**Crystal Data:** Hexagonal.  
**Point Group:** 3 2/m.  
As zones to 0.1 mm thick along rhombohedral growth sectors in crystals of florencite-(Ce).

**Physical Properties:** Cleavage: Perfect on {0001}; parting on {112 0}.  
Fracture: Uneven.  
Tenacity: Brittle.  
Hardness = 5.5-6  
D(meas.) = 3.60(1)  
D(calc.) = 3.666 and 3.743 (for the 2 compositions given below in ‘Chemistry’)

**Optical Properties:** Transparent.  
Color: Colorless to pale pink or pale yellow.  
Streak: White.  
Luster: Vitreous to greasy.  
Optical Class: Uniaxial (+).  
ω = 1.704(2)  
ε = 1.713(2)

**Cell Data:**  
Space Group: F̄3 m.  
*a* = 6.972(4)  
*c* = 16.182(7)  
*Z* = 3

**X-ray Powder Pattern:** Svodovyi site, Maldynyrd Ridge, Subpolar Urals, Russia.  
2.925 (100), 1.881(58), 2.161 (46), 5.65 (43), 3.479 (37), 2.191 (22), 1.738 (20)

<table>
<thead>
<tr>
<th>Chemistry</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>La₂O₃</td>
<td>n.d.</td>
<td>0.62</td>
<td>SrO</td>
<td>1.91</td>
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<tr>
<td>Ce₂O₃</td>
<td>1.92</td>
<td>3.29</td>
<td>CaO</td>
<td>0.77</td>
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<tr>
<td>Pr₂O₃</td>
<td>0.16</td>
<td>1.05</td>
<td>Al₂O₃</td>
<td>30.20</td>
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<tr>
<td>Nd₂O₃</td>
<td>9.35</td>
<td>10.31</td>
<td>P₂O₅</td>
<td>27.18</td>
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<tr>
<td>Sm₂O₃</td>
<td>12.96</td>
<td>12.62</td>
<td>SO₃</td>
<td>2.13</td>
</tr>
<tr>
<td>Eu₂O₃</td>
<td>n.d.</td>
<td>0.41</td>
<td>SiO₂</td>
<td>n.d.</td>
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<tr>
<td>Gd₂O₃</td>
<td>2.55</td>
<td>2.30</td>
<td>H₂O</td>
<td>10.74</td>
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<tr>
<td>Dy₂O₃</td>
<td>n.d.</td>
<td>0.13</td>
<td>Total</td>
<td>99.87</td>
</tr>
</tbody>
</table>

(1) Svodovyi site, Maldynyrd Ridge, Russia; average of 5 electron microprobe analyses, H₂O by TGA; corresponding to (Sm₀.₃Nd₀.₇Gd₀.₀Gr₀.₀₆Ce₀.₀₉Pr₀.₀₇Sr₀.₀₀₆Ca₀.₀₇)Σ=0.₉₅Al₂₀₇(P₁₀.₉₂S₀.₁₃)Σ=2.₀₅O₁₄H₅₉₈.  
(2) Same as above; average of 3 electron microprobe analyses; corresponding to (Sm₀.₃Nd₀.₇Gd₀.₀Gr₀.₀₆Ce₀.₀₉Pr₀.₀₇Sr₀.₀₀₆Ca₀.₀₇)Σ=0.₉₉₅Al₁₃₀₇(P₁₀.₉₂S₀.₁₃)Σ=2.₀₅O₁₄H₅₉₈.

**Mineral Group:** Plumbogummite group of the alunite supergroup.

**Occurrence:** In quartz veins cutting quartz meta-conglomerate beds near contacts with Al-enriched metasomatites.

**Association:** Florencite-(Ce), xenotime-(Y), quartz, dravite.

**Distribution:** Svodovyi site, Maldynyrd Ridge, Subpolar Urals, Russia.

**Name:** As the Sm-dominant example of the florencite structure.

**Type Material:** Natural Science Museum, Ilmen State Reserve, Miass, Russia.

**References:**  
Geol. Ore Deposits, 53(7), 564-574 (in English).  