Forêtite \( \text{Cu}_2\text{Al}_2(\text{AsO}_4)(\text{OH,O,H}_2\text{O})_6 \)

**Crystal Data**: Triclinic.  
**Point Group**: \( \bar{1} \).  
As platy crystals to 20 \( \mu \text{m} \), typically in divergent spherical aggregates to 0.1 mm.

**Physical Properties**:  
**Cleavage**: Poor on (010).  
**Fracture**: Irregular.  
**Tenacity**: Brittle.  
**Hardness**: 3-4  
\( \text{D} \text{(meas.)} = \text{n.d.} \)  
\( \text{D} \text{(calc.)} = 3.286 \)

**Optical Properties**:  
**Color**: Pale sky blue to aqua.  
**Streak**: Very pale blue.  
**Luster**: Vitreous.  
**Optical Class**: Biaxial (n.d.).  
\( n = 1.620(5) \)

**Cell Data**:  
**Space Group**: \( P\bar{1} \).  
\( a = 6.969(9) \)  
\( b = 7.676(9) \)  
\( c = 8.591(11) \)  
\( \alpha = 82.01(9)^\circ \)  
\( \beta = 71.68(8)^\circ \)  
\( \gamma = 102.68(8)^\circ \)  
\( Z = 2 \)

**X-ray Powder Pattern**:  
Cap Garonne mine, France.  
7.307 (100), 3.141 (24), 2.818 (24), 4.519 (23), 2.343 (22), 4.277 (18), 3.455 (17)

**Chemistry**:  
<table>
<thead>
<tr>
<th>Component</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuO</td>
<td>37.53</td>
<td>37.79</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>24.37</td>
<td>24.22</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>As₂O₅</td>
<td>23.52</td>
<td>27.29</td>
</tr>
<tr>
<td>SO₃</td>
<td>1.81</td>
<td></td>
</tr>
<tr>
<td>SiO₂</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>H₂O</td>
<td>[11.40]</td>
<td>10.70</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Cap Garonne mine, France; average of 6 electron microprobe analyses, presence of H₂O and OH⁻ confirmed by Raman spectroscopy, H₂O by difference; corresponding to Cu₁.₉₄(Al₁.₉₆Fe³⁺₀.₀₄)Σ=2.₀₀(As₀.₈₄S₀.₀₉Si₀.₀₄)Σ=0.₉₇O₁₀H₅.₁₉.  
(2) \( \text{Cu}_2\text{Al}_2(\text{AsO}_4)(\text{OH,O,H}_2\text{O})_6 \).

**Occurrence**: A secondary mineral in the oxidation zone of a hydrothermal sulfide deposit presumably formed under acidic conditions.

**Association**: Baripharphacoalumite, cyanotrichite, parnauite, chalcopyllite, mansfieldite (Cap Garonne mine); chalcopyllite, mansfieldite, olivenite, goethite (Salsigne mine).

**Distribution**: From the Annex S chamber and pillar 44b, Cap Garonne mine, Var, Provence-Alpes-Côte d’Azur and at the Salsigne gold mine, Aude, Languedoc-Roussillon, France.

**Name**: Honors Jean-Paul Forêt (b. 1943), a retired engineer of the French Ministry of Equipment, and a co-founder of the Musée de la Mine de Cap Garonne.

**Type Material**: Natural History Museum of Los Angeles County, California, USA (# 63573, 63574, 63575, 63576, 63577); the Museum Victoria, Melbourne, Australia (M51746); and Muséum National d’Histoire Naturelle, Paris, France (# 211.58).