Dussertite  

\[ \text{BaFe}^{3+}(\text{AsO}_4)(\text{AsO}_3\text{OH})(\text{OH})_6 \]

**Crystal Data:** Hexagonal. Point Group: \( \overline{3} 2/m \). As crystals, flattened on \( \{0001\} \), to 0.01 mm; in rosettes and crusts.

**Physical Properties:** Hardness = 3.5  D(meas.) = 3.75  D(calc.) = 4.09-4.293

**Optical Properties:** Semitransparent. Color: Green to pistachio-green, bluish green; yellowish green in transmitted light.  
*Optical Class:* Uniaxial (-), rarely anomalously biaxial.  
*Pleochroism:* In shades of greenish yellow.  
\( \omega = 1.870 \quad \epsilon = 1.845-1.85 \quad 2V(\text{meas.}) = 15^\circ-20^\circ \)

**Cell Data:** Space Group: \( \text{R}3 \overline{m} \). 
\( a = 7.410(3) \quad c = 17.484(4) \quad Z = 3 \)

**X-ray Powder Pattern:** Djebel Debar, Algeria. (ICDD 35-621).
3.13 (100), 2.329 (40), 3.713 (30), 2.915 (30), 2.012 (30), 6.04 (25), 1.857 (25)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As(_2)O(_5)</td>
<td>31.23</td>
<td>34.42</td>
</tr>
<tr>
<td>Fe(_2)O(_3)</td>
<td>34.57</td>
<td>35.87</td>
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<tr>
<td>CaO</td>
<td>0.08</td>
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<tr>
<td>BaO</td>
<td>20.93</td>
<td>22.96</td>
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<tr>
<td>H(_2)O</td>
<td>9.30</td>
<td>6.75</td>
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<tr>
<td>insol.</td>
<td>4.10</td>
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<tr>
<td>Total</td>
<td>100.21</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Djebel Debar, Algeria.  
(2) BaFe\(_3\)(AsO\(_4\))\(_2\)(OH)\(_5\).  
(3) Clara mine, Germany; no analysis given; said to correspond to Ba\(_{0.9}\)(Fe\(_{3+}\)\(_{0.84}\)Sb\(_{5+}\)\(_{0.16}\))\(_2\)(AsO\(_4\))\(_2\)(OH,H\(_2\)O)\(_6\).

**Mineral Group:** Alunite supergroup, dussertite group.

**Occurrence:** In the oxidized zone of some base-metal deposits, typically an alteration product of arsenopyrite.

**Association:** Beudantite, carminite, scorodite, arseniosiderite, stibiconite, goethite, quartz.

**Distribution:** From Djebel Debar, northeast of Hammam Meskhoutine, Qacentina (Constantine), Algeria. At the Senator mine, 20 km south-southwest of Kutahya, Turkey. In the Ojuela mine, Mapimí, Durango, Mexico. From Tecoma, Elko Co., Nevada, USA. In Germany, on Mt. Borstein, near Reichenbach, Hesse; in the Black Forest, at the Clara mine, near Oberwolfach, the Anton mine, Heubachtal, near Schiltach, and Freudenstein, near Wittichen; at Schneeberg, Saxony.

**Name:** Honors Desiré Dussert (1872–?), French mining engineer who worked in Algeria.

**Type Material:** n.d.

**References:**  