Deferinite

\[
\text{Ca}_6(\text{CO}_3)_{2-x}(\text{SiO}_4)_x(\text{OH})_7(\text{Cl}, \text{OH})_{1-2x} (x \cdot 0.5)
\]

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Crystal Data: Orthorhombic. Point Group: \(2/m 2/m 2/m\). As anhedral platy crystals, to 2 cm, flattened on \{010\}; in fan-shaped forms.

Physical Properties: Cleavage: Perfect on \{010\}; distinct on \{100\}. Fracture: Conchoidal to splintery. Hardness = n.d. D(meas.) = 2.34–2.5 D(calc.) = 2.31–2.42

Optical Properties: Transparent. Color: Colorless to deep red or rose-brown. Streak: Pink. Luster: Vitreous. Optical Class: Biaxial \((-\)\). Pleochroism: Strong; \(X = \text{ocher-brown}; Y = \text{brownish orange to ocher-brown}; Z = \text{colorless to yellow. Orientation: } X = c; Y = b; Z = a\). Dispersion: \(r > v\), weak. \(\alpha = 1.544(2)\) \(\beta = 1.580(2)\) \(\gamma = 1.584(2)\) \(2V(\text{meas.}) = 38(2)^\circ\)

Cell Data: Space Group: \(Pnam\). \(a = 17.82–17.86\) \(b = 22.62–22.78\) \(c = 3.63–3.66\) \(Z = 8\)

X-ray Powder Pattern: Güneyce-İkizdere, Turkey. 11.37 (100), 2.899 (50), 3.045 (40), 8.29 (35), 2.418 (35), 1.962 (35), 5.68 (30)

Chemistry:

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td></td>
<td>1.2</td>
<td>3.6</td>
</tr>
<tr>
<td>FeO</td>
<td></td>
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</tr>
<tr>
<td>MnO</td>
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<td>1.2</td>
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</tr>
<tr>
<td>MgO</td>
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<tr>
<td>CaO</td>
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<tr>
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<tr>
<td>H₂O⁺</td>
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<td>O</td>
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<tr>
<td>Total</td>
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<td>[100.00]</td>
<td>100.5</td>
</tr>
</tbody>
</table>

(1) Güneyce-İkizdere, Turkey; by electron microprobe, average of 18 analyses on three samples, H₂O by difference; corresponds to \(\text{Ca}_6.00(\text{CO}_3)_{1.62}(\text{SiO}_4)_{0.1}(\text{OH})_{7.82}\text{Cl}_{0.50} \cdot 2.00\text{H}_2\text{O}\) (with zeolitic H₂O). (2) Kombat mine, Namibia; preferred values obtained from analysis by AA, electron microprobe, Heraeus CHN analyzer, and the Penfield method; corresponds to \((\text{Ca}_{5.90}\text{Mn}_{0.09}\text{Mg}_{0.01})_{2}\text{Ca}=6.00(\text{CO}_3)_{1.88}(\text{SiO}_4)_{0.30}(\text{OH})_{6.48}\text{Cl}_{0.50}\).

Occurrence: In skarn at a granite-limestone contact (Güneyce-İkizdere, Turkey); throughout a body of unband ed, granular massive hausmannite (Kombat mine, Namibia).

Association: Vesuvianite, wollastonite, andradite, diopside, calcite, rustumite, spurrite, hillebrandite (Güneyce-İkizdere, Turkey); hausmannite, hillebrandite, brucite, crednerite, barite, calcite, vesuvianite, jacobsite, hematite, copper (Kombat mine, Namibia).

Distribution: From the Güneyce-İkizdere area, Trabzon Province, Turkey. In the Kombat mine, 49 km south of Tsumeb, Namibia.

Name: For Jacques Deferne, Curator of Mineralogy, Museum of Natural History, Geneva, Switzerland.


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