Chlorapatite

Crystal Data: Hexagonal or monoclinic. Point Group: 6/m or 2/m. As prismatic hexagonal crystals, to 5 cm; granular, massive, may be in zoned intergrowths with fluorapatite.


2V(meas.) = ~10°


X-ray Powder Pattern: Bob’s Lake, Canada. 2.853 (100), 2.770 (100), 1.960 (50), 1.838 (50), 3.39 (40), 2.306 (40), 1.910 (25)

Chemistry:

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2O5</td>
<td>41.2</td>
<td>40.62</td>
<td>40.89</td>
<td>Cl</td>
<td>6.2</td>
<td>3.22</td>
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<tr>
<td>CaO</td>
<td>53.4</td>
<td>54.87</td>
<td>53.84</td>
<td>H2O</td>
<td>0.09</td>
<td>0.50</td>
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<tr>
<td>F</td>
<td>0.13</td>
<td>0.84</td>
<td>0.84</td>
<td>−O = (F, Cl)2</td>
<td>1.45</td>
<td>1.08</td>
</tr>
</tbody>
</table>

Total | 99.57| 98.97| 100.00

(1) Bob’s Lake, Canada; Ca4.95(PO4)3.02[Cl0.91(OH)0.05]Σ=1.00
(2) Fairfax, Virginia, USA; H2O calculated for stoichiometry, corresponding to Ca5.13(PO4)3.00[Cl0.48(OH)0.29]Σ=1.00 F0.23
(3) Ca5(PO4)3Cl

Polymorphism & Series: End-member chlorapatite is monoclinic.

Mineral Group: Apatite group; Cl > F or OH.

Occurrence: Relatively much rarer than fluorapatite or hydroxylapatite, formed in F-deficient environments. In calcisilicate marble; an accessory mineral in layered mafic intrusions; in veins through diabase; replacing triplite in granite pegmatite. In meteorites.

Association: Actinolite, diopside, calcite, quartz, talc (Bob’s Lake, Canada); amphibole, chlorite, plagioclase, titanite, datolite (Bull Run quarry, Virginia, USA); olivine, orthopyroxene, phlogopite, ferroalluaudite, chromite (Angarf-Sud pegmatite, Morocco).

Distribution: Analyzed material noted from: in the USA, the Fairfax quarry, Centreville, Fairfax Co., and Bull Run quarry, Loudoun Co., Virginia; at the Stillwater complex, Montana; in the White Picacho district, Maricopa and Yavapai Cos., Arizona. From Bob’s Lake, Frontenac Co., Quebec, Canada. In the Bushveld complex, Transvaal, South Africa. At the Angarf-Sud pegmatite, Tazenakht Plain, Morocco. From Rajagarh, near Ajmer, Rajasthan, India. At Kurokura, Kangway Prefecture, Japan. From Kragerø and Ødegården, Bamble, and as large crystals from Snarum, Norway.

Name: For dominant chlorine and membership in the apatite group; see fluorapatite.