Hydroxylbastnäsite-(Ce)  

(Ce, La)(CO₃)(OH, F)

Crystal Data:  
Hexagonal.  
Point Group:  6/m2.  
Tabular crystals exhibit {0001} and {1120}, to 0.5 mm; granular to short prismatic, reniform, and in sheaflike aggregates.  
Twinning:  On {1120}.

Physical Properties:  
Cleavage:  {1120}, imperfect.  
Fracture:  Uneven.  
Hardness = ~4

D(meas.) = 4.745  
D(calc.) = [4.79]

Optical Properties:  
Translucent to nearly opaque.  
Color:  Colorless, wax-yellow, dark brown; colorless in transmitted light.  
Luster:  Vitreous to greasy.  
Optical Class:  Uniaxial (+).  
\( \omega = 1.760(3) \)  
\( \epsilon = 1.870(6) \)

Cell Data:  
Space Group:  P\( 6_2 \)c.  
a = 7.23(2)  
c = 9.98(5)  
Z = 6

X-ray Powder Pattern:  
Vuoriyarvi complex, Kola Peninsula, Russia [close to bastnäsite-(Ce)].

2.92 (10), 3.59 (9), 2.09 (9), 1.923 (9), 2.05 (8), 1.698 (7), 1.319 (7)

Chemistry:  

<table>
<thead>
<tr>
<th>Substance</th>
<th>Atomic Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₃</td>
<td>0.40</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>0.23</td>
</tr>
<tr>
<td>CO₂</td>
<td>19.70</td>
</tr>
<tr>
<td>SiO₂</td>
<td>0.30</td>
</tr>
<tr>
<td>TiO₂</td>
<td>0.04</td>
</tr>
<tr>
<td>ThO₂</td>
<td>0.50</td>
</tr>
<tr>
<td>La₂O₃</td>
<td>26.86</td>
</tr>
</tbody>
</table>

\( \sum = 100.36 \)

Polymorphism & Series:  
Forms a series with bastnäsite-(Ce).

Occurrence:  
In calcite–dolomite carbonatite veins in pyroxenite of an alkalic ultramafic complex (Vuoriyarvi complex, Kola Peninsula, Russia); in a vug in perthitic pegmatite (Kamihori, Japan); in veins and lenses in marble (Desmont mine, Canada).

Association:  
Barite, strontianite, aneyclite, fluorite, pyrrhotite, pyrite, chalcopyrite, magnetite, anatase, monazite, burlanikite, quartz (Vuoriyarvi complex, Kola Peninsula, Russia); beryl, zircon, xenotime, allanite, fergusonite, gadolinite, ilmenite (Kamihori, Japan); stillwellite, calcite, apatite, titanite, thorite, thorianite, scapolite, tourmaline (Desmont mine, Canada).

Distribution:  
From the Vuoriyarvi carbonatite complex, Kola Peninsula, Russia. In the Ossling quarry, between Kamenz and Hoyerswenda, Saxony, Germany. At Kamihori, Miyazaki Prefecture, Japan. In the Desmont mine, two km northwest of Wilberforce, Ontario, Canada.

Name:  
For a member of the bastnäsite group with (OH)\(^{1−}\) > F\(^{1−}\) and with cerium the dominant rare earth element.

Type Material:  
n.d.

References:  

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