Bastnäsite-(Ce)

(Ce, La)(CO₃)F

(Bastnäsite-(Ce) (Ce, La)(CO₃)F

Crystalline Data:
Hexagonal. Point Group: 62c. Commonly in tabular to equant crystals, with {0001} and {1010}, may be modified by {1120}, {1011}, {1012}, {1013}, {1122}, horizontally striated, may be elongated, commonly in syntactic intergrowth with röntgenite-(Ce), synchysite-(Ce), parisite-(Ce), or cordylite-(Ce), to 20 cm; granular, massive.

Physical Properties:

Optical Properties:

Cell Data:
Space Group: P62c. a = 7.118(1) c = 9.762(1) Z = 6

X-ray Powder Pattern:
Stove Mountain, Colorado, USA. 2.88 (100), 3.56 (71), 2.06 (50), 1.892 (50), 4.90 (35), 2.01 (35), 1.675 (24)

Chemistry:
(1) (3)
P₂O₅ 0.60 F 6.23 8.69
CO₂ 20.20 20.14 -O = F₂ 2.61 3.66
La₂O₃ 36.30 37.28 Total 101.22 100.00
Ce₂O₃ 40.50 37.55

(1) Madagascar. (2) Gallinas Mountains, New Mexico, USA; analysis not given, corresponds to (Ce₀.₄₈⁺Nd₀.₁₆⁺Pr₀.₀₄⁺Sm₀.₀₁⁺Σ=1)(CO₃)F. (3) (Ce, La)(CO₃)F with Ce:La = 1:1.

Polymorphism & Series:
4H, 6R, 3R polytypes; forms a series with hydroxylbastnäsite-(Ce).

Occurrence:
The most abundant RE-bearing mineral, typically hydrothermal, although primary igneous occurrences are known. In granite and alkaline syenites and pegmatites; in carbonatites; in contact-metamorphic deposits; rarely as a detrital mineral in placers.

Association:
Allanite-(Ce), cerianite-(Ce), synchysite-(Ce), parisite-(Ce), cerite-(Ce), fluocerite-(Ce), fluorite.

Distribution:

Name:
For its first-noted occurrence in the Bastnäss mine, Sweden, and content of cerium.

Type Material:

References:

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.