

Ce[CO ₃]F	<i>hP</i> 18	(189) <i>P</i> -62 <i>m</i> – <i>ig</i> ² <i>fca</i>
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(Ce,La)(CO₃)F [1], bastnäsite-(Ce)

Structural features: Hexagon-mesh CeF layers alternate with layers containing distorted CO₃ trigonal units perpendicular to the layer.

Oftedal I. (1930) [1]

CCeFO₃

$a = 0.7094$, $c = 0.4859$ nm, $c/a = 0.685$, $V = 0.2118$ nm³, $Z = 3$

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
O1	6 <i>i</i>	<i>..m</i>	0.333	0	0.3		single atom C
C2	3 <i>g</i>	<i>m2m</i>	0.333	0	$\frac{1}{2}$		colinear O ₂
O3	3 <i>g</i>	<i>m2m</i>	0.5	0	$\frac{1}{2}$		single atom C
Ce4	3 <i>f</i>	<i>m2m</i>	0.667	0	0		coplanar triangle F ₃
F5	2 <i>c</i>	-6.. <i></i>	$\frac{1}{3}$	$\frac{2}{3}$	0		coplanar triangle Ce ₃
F6	1 <i>a</i>	-62 <i>m</i>	0	0	0		coplanar triangle Ce ₃

Experimental: powder, film, X-rays

Remarks: Natural specimen from West Cheyenne Canyon, Colorado. Approximate structure. Short interatomic distances: d(C2-O1) = 0.097 nm, angle(O2-C2-O1) = 90° and angle(O1-C2-O1) = 180°. The structure was later refined in space group (190) *P*-62*c* with 2-fold cell volume (new axes *a*,*b*,2*c*) [2].

References: [1] Oftedal I. (1930), Z. Kristallogr. 72, 239-248. [2] Ni Y., Hughes J.M., Mariano A.N. (1993), Am. Mineral. 78, 415-418.