

$(\text{Na}_{0.6}\text{Ca}_{0.3})_3(\text{Ba}_{0.17}\text{Sr}_{0.53}\text{Ca}_{0.15}\text{Ce}_{0.15})_3[\text{CO}_3]_5$ $hP52$ $(186) P6_3mc - dc^6ba$ **(Na,Ca)_{3-x}(Sr,Ce)₃(CO₃)₅** [2], burbankite

Structural features: (Na,Ca)O₆O₂ bicapped trigonal prisms are interconnected via common vertices and CO₃ trigonal units to form a 3D-framework; additional CO₃ trigonal units (perpendicular to [001]) and (Sr,Ba,Ce,Ca) in channels parallel to [001].

Belovitskaya Y.V. et al. (2000) [1]

 $\text{Ba}_{0.36}\text{Ce}_5\text{Ca}_{0.61}\text{Ce}_{0.36}\text{Na}_{1.45}\text{O}_{15}\text{Sr}_{1.90}$ $a = 1.05313$, $c = 0.64829$ nm, $c/a = 0.616$, $V = 0.6227$ nm³, $Z = 2$

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
O1	12 <i>d</i>	1	0.376	0.088	0.278		single atom C
M2	6 <i>c</i>	. <i>m</i> .	0.159	0.841	0.15	0.92	10-vertex polyhedron O ₁₀
O3	6 <i>c</i>	. <i>m</i> .	0.406	0.594	0.14		single atom C
M4	6 <i>c</i>	. <i>m</i> .	0.4763	0.5237	0.469	0.64	10-vertex polyhedron O ₈ C ₂
O5	6 <i>c</i>	. <i>m</i> .	0.77	0.23	0.008		single atom C
C6	6 <i>c</i>	. <i>m</i> .	0.799	0.201	0.18		non-coplanar triangle O ₃
O7	6 <i>c</i>	. <i>m</i> .	0.93	0.07	0.002		single atom C
C8	2 <i>b</i>	3 <i>m</i> .	$\frac{1}{3}$	$\frac{2}{3}$	0.14		coplanar triangle O ₃
C9	2 <i>a</i>	3 <i>m</i> .	0	0	0.0		non-coplanar triangle O ₃

 $M2 = 0.69\text{Sr} + 0.13\text{Ba} + 0.13\text{Ce} + 0.05\text{Ca}$; $M4 = 0.756\text{Na} + 0.244\text{Ca}$

Transformation from published data: origin shift 0 0 0.35

Experimental: powder, diffractometer, X-rays, $R_p = 0.025$

Remarks: Natural specimen from Kukisvumchorr, Khibiny, Kola Peninsula. Composition $(\text{Na}_{2.22}\text{Ca}_{0.65}\text{Y}_{0.03})(\text{Sr}_{2.10}\text{Ba}_{0.33}\text{Ce}_{0.23}\text{Ca}_{0.15}\text{La}_{0.12}\text{Nd}_{0.05}\text{Pr}_{0.02})(\text{CO}_3)_5$ from chemical analysis. In [2] the mineral name is misprinted as berbankite instead of burbankite. We assume that in table 3 (sample B-108) of [1] the *x*-coordinate of former O(2) is misprinted as 0.931 instead of 0.930 (agreement with Wyckoff position 6*c*).

References: [1] Belovitskaya Y.V., Pekov I.V., Kubalov Y.K. (2000), Crystallogr. Rep. 45, 26-29 (Kristallografiya 45, 32-35). [2] Voronkov A.A., Shumyatskaya N.G. (1968), Sov. Phys. Crystallogr. 13, 192-196 (Kristallografiya 13, 246-252).