

H ₄ Na ₂₅ Ba(Y _{0.55} Gd _{0.25} Dy _{0.2}) ₂ [CO ₃] ₁₅ [SO ₄] ₂ ClF ₂	<i>hP</i> 202	(176) <i>P</i> 6 ₃ / <i>m</i> – i ¹³ h ³ f ⁴ e ² cb
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Na₂₅BaR₂(CO₃)₁₁(HCO₃)₄(SO₄)₂ClF₂ [1], mineevite-(Y)

Structural features: Slabs containing (Y,Gd,Dy)₂(CO₃)₉ units (two base-linked (Y,Gd,Dy)O₆O₃ trigonal prisms sharing edges and vertices with nine CO₃ trigonal units) alternate with slabs containing Ba(CO₃)₆ icosahedral units (a BaO₁₂ icosahedron sharing edges with six CO₃ trigonal units); Cl atoms in the latter, SO₄ tetrahedra between the slabs.

Yamnova N.A. et al. (1992) [1]

BaC₁₅ClDy_{0.40}F₂Gd_{0.50}Na₂₅O₅₃S₂Y_{1.10}

a = 0.8811, *c* = 3.703 nm, *c/a* = 4.203, *V* = 2.4896 nm³, *Z* = 2

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
O1	12 <i>i</i>	1	0.038	0.332	0.023		single atom C
O2	12 <i>i</i>	1	0.044	0.292	0.1894		single atom C
O3	12 <i>i</i>	1	0.224	0.136	0.1509		single atom C
O4	12 <i>i</i>	1	0.251	0.138	0.0594		single atom C
O5	12 <i>i</i>	1	0.309	0.496	0.0942		single atom S
C6	12 <i>i</i>	1	0.316	0.069	0.1628		coplanar triangle O ₃
C7	12 <i>i</i>	1	0.348	0.077	0.0465		non-coplanar triangle O ₃
Na8	12 <i>i</i>	1	0.3483	0.4478	0.0333		pentagonal bipyramid O ₆ F
Na9	12 <i>i</i>	1	0.3508	0.4497	0.1751		trigonal bipyramid O ₅
O10	12 <i>i</i>	1	0.436	0.344	0.2202		single atom C
Na11	12 <i>i</i>	1	0.4416	0.3293	0.1064		monocapped trigonal prism O ₇
O12	12 <i>i</i>	1	0.466	0.109	0.1493		single atom C
O13	12 <i>i</i>	1	0.51	0.15	0.0591		single atom C
Na14	6 <i>h</i>	<i>m</i> ..	0.02	0.377	1/4		non-colinear O ₂
O15	6 <i>h</i>	<i>m</i> ..	0.186	0.161	1/4		single atom C
C16	6 <i>h</i>	<i>m</i> ..	0.355	0.283	1/4		non-coplanar triangle O ₃
S17	4 <i>f</i>	3..	1/3	2/3	0.107		tetrahedron O ₄
O18	4 <i>f</i>	3..	1/3	2/3	0.1481		single atom S
F19	4 <i>f</i>	3..	1/3	2/3	0.5022		non-coplanar triangle Na ₃
Na20	4 <i>f</i>	3..	1/3	2/3	0.6916		octahedron O ₆
Na21	4 <i>e</i>	3..	0	0	0.1026		trigonal prism O ₆
M22	4 <i>e</i>	3..	0	0	0.19842		tricapped trigonal prism O ₉
Cl23	2 <i>c</i>	-6..	1/3	2/3	1/4		coplanar triangle Na ₃
Ba24	2 <i>b</i>	-3..	0	0	0		icosahedron O ₁₂

M22 = 0.55Y + 0.25Gd + 0.20Dy

Transformation from published data: *y*,*x*,*-z*

Experimental: single crystal, diffractometer, X-rays, R = 0.037

Remarks: Natural specimen from Lovozero, Kola Peninsula. Hydrogen atoms are not taken into consideration for Pearson symbol, Wyckoff sequence and atomic environments.

References: [1] Yamnova N.A., Pushcharovskii D.I., Vyatkin S.V., Khomyakov A.P. (1992), Sov. Phys. Crystallogr. 37, 753-756 (Kristallografiya 37, 1396-1402).