$K_{0.31}Na_{0.64}Ba_{0.71}Mg_{0.29}Fe_{10.55}O_{17.30}$	*hP*80	(174) *P*-6 – $l^6k^2j^2i^4h^4g^7ed$

$K_{0.31}Na_{0.64}Ba_{0.71}Mg_{0.29}Fe_{10.55}O_{17.30}$ [1], magnetoplumbite family
Structural features: Intergrowth of M-type ferrite and β-alumina type structures in the ratio 2:1.

Stergiou A.C. et al. (1998) [1]
$Ba_{0.71}Fe_{10.56}K_{0.26}Mg_{0.27}Na_{0.61}O_{17.29}$
$a = 0.591$, $c = 2.3203$ nm, $c/a = 3.926$, $V = 0.7019$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	6*l*	1	0.0052	0.4882	0.0959	0.91	trigonal bipyramid Fe_4O
O2	6*l*	1	0.0057	0.5	0.4009	0.91	trigonal bipyramid Fe_4O
O3	6*l*	1	0.1553	0.301	0.1979	0.86	trigonal bipyramid Fe_4O
M4	6*l*	1	0.1655	0.3349	0.3594	0.873	8-vertex polyhedron O_7Fe
O5	6*l*	1	0.3182	0.1638	0.3022	0.86	trigonal bipyramid Fe_4O
M6	6*l*	1	0.339	0.167	0.1435	0.873	8-vertex polyhedron O_7Fe
O7	3*k*	*m*..	0.0165	0.5104	$^1/_2$	0.107	coplanar triangle O_2Ba
O8	3*k*	*m*..	0.3696	0.1666	$^1/_2$	0.9	
O9	3*j*	*m*..	0.157	0.3517	0	0.9	
O10	3*j*	*m*..	0.5253	0.0405	0	0.107	coplanar triangle BaO_2
Fe11	2*i*	3..	$^2/_3$	$^1/_3$	0.1084	0.11	7-vertex polyhedron O_4Fe_3
M12	2*i*	3..	$^2/_3$	$^1/_3$	0.1925		trigonal bipyramid Fe_5
M13	2*i*	3..	$^2/_3$	$^1/_3$	0.2786	0.943	tetrahedron O_4
M14	2*i*	3..	$^2/_3$	$^1/_3$	0.4418	0.913	9-vertex polyhedron O_9
M15	2*h*	3..	$^1/_3$	$^2/_3$	0.0638	0.913	9-vertex polyhedron O_9
M16	2*h*	3..	$^1/_3$	$^2/_3$	0.2236	0.943	tetrahedron O_4
M17	2*h*	3..	$^1/_3$	$^2/_3$	0.303		trigonal bipyramid Fe_5
Fe18	2*h*	3..	$^1/_3$	$^2/_3$	0.381	0.11	7-vertex polyhedron O_4Fe_3
M19	2*g*	3..	0	0	0.0117	0.387	
M20	2*g*	3..	0	0	0.0995	0.904	
O21	2*g*	3..	0	0	0.1389	0.21	
M22	2*g*	3..	0	0	0.2521		7-vertex polyhedron O_7
O23	2*g*	3..	0	0	0.3471	0.21	single atom O
M24	2*g*	3..	0	0	0.4043	0.904	single atom O
M25	2*g*	3..	0	0	0.4927	0.387	
M26	1*e*	-6..	$^2/_3$	$^1/_3$	0	0.896	
M27	1*d*	-6..	$^1/_3$	$^2/_3$	$^1/_2$	0.896	

M4 = 0.973Fe + 0.027Mg; M6 = 0.973Fe + 0.027Mg; M12 = 0.94O + 0.04K + 0.02Na; M13 = 0.975Fe + 0.025Mg; M14 = 0.974Fe + 0.026Mg; M15 = 0.974Fe + 0.026Mg; M16 = 0.975Fe + 0.025Mg; M17 = 0.94O + 0.04K + 0.02Na; M19 = 0.835Fe + 0.09Ba + 0.052Na + 0.023Mg; M20 = 0.745O + 0.155Na + 0.10K; M22 = 0.98Fe + 0.02Mg; M24 = 0.745O + 0.155Na + 0.10K; M25 = 0.835Fe + 0.09Ba + 0.052Na + 0.023Mg; M26 = 0.72Ba + 0.28Na; M27 = 0.72Ba + 0.28Na
Transformation from published data: *-x*,*-y*,*-z*; origin shift 0 0 $^1/_2$
Experimental: single crystal, diffractometer, X-rays, wR = 0.032

Remarks: Phase referred to as (Na,K)-β"-ferrite. The total occupancies of sites M12 and M17 were set to unity, published value 1.023. In table 2 of [1] the Wyckoff position of former O(30) is misprinted as 3*j* instead of 3*k*. Short interatomic distances for partly occupied site(s).

References: [1] Stergiou A.C., Litsardakis G., Samaras D. (1998), Solid State Ionics 109, 55-64.