$K(Zn_{0.83}Mn_{0.16})_3(Mn_{0.5}Fe_{0.5})_2Si_{12}O_{30}$	*hP*96	(184) *P*6*cc* – d^7cba

$K(Zn,Mn)_3(Mn,Fe)_2Si_{12}O_{30}$ [1], milarite-(Zn)
Structural features: $Si_{12}O_{30}$ units (double 6-rings formed by twelve vertex-linked SiO_4 tetrahedra) share vertices with $(Zn,Mn)O_4$ tetrahedra and $(Mn,Fe)O_6$ octahedra to form a 3D-framework; K in the columns formed by superposed double 6-rings.

Pushcharovskii D.I. et al. (1972) [1]
$FeKMn_{1.50}O_{30}Si_{12}Zn_{2.50}$
a = 1.052, c = 1.422 nm, c/a = 1.352, V = 1.3629 nm^3, Z = 2

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	12*d*	1	0.096	0.355	0.273		non-colinear Si_2
Si2	12*d*	1	0.103	0.346	0.389		tetrahedron O_4
Si3	12*d*	1	0.108	0.338	0.16		tetrahedron O_4
O4	12*d*	1	0.142	0.495	0.108		non-coplanar triangle SiZnFe
O5	12*d*	1	0.146	0.49	0.44		single atom Si
O6	12*d*	1	0.272	0.059	0.132		non-colinear Si_2
O7	12*d*	1	0.273	0.061	0.413		non-colinear Si_2
M8	6*c*	2..	$^1/_2$	0	0.023		tetrahedron O_4
M9	4*b*	3..	$^1/_3$	$^2/_3$	0.035		octahedron O_6
K10	2*a*	6..	0	0	0.0		hexagonal prism O_{12}

M8 = 0.833Zn + 0.167Mn; M9 = 0.5Fe + 0.5Mn
Transformation from published data: origin shift 0 0 0.227
Experimental: single crystal, Weissenberg photographs, X-rays, R = 0.144

Remarks: We assigned approximate values to the cation ratios of sites M8 and M9 based on the nominal composition.

References: [1] Pushcharovskii D.I., Baataryn T., Pobedimskaya E.A., Belov N.V. (1972), Sov. Phys. Crystallogr. 16, 628-630 (Kristallografiya 16, 721-724).