$H_4Ni_{10}[PO_4]_6[OH]_6[H_2O]_9$	*hP*124	(176) $P6_3/m$ – $i^4h^{12}f$

$Ni_{20}[(PO_4)_4(HPO_4)_8][(OH)_{12}(H_2O)_6]\cdot 12H_2O$ [2]
Structural features: $Ni(O_3[OH]_3)$, $Ni(O_4[OH]_2$ and $Ni(O_4[OH][OH_2])$ octahedra share faces, edges and vertices to form a 3D-framework; P in tetrahedral voids (single PO_4 and $P(O_3[OH])$ tetrahedra), additional H_2O in large channels parallel to [001].

Guillou N. et al. (2001) [1]
$H_{28.35}Ni_{10}O_{39.17}P_6$
a = 1.8209, c = 0.63898 nm, c/a = 0.351, V = 1.8348 nm^3, Z = 2

site	Wyck.	sym.	x	y	z	occ.	atomic environment
O1	12*i*	1	0.0545	0.4482	0.05		single atom P
$(OH_2)2$	12*i*	1	0.089	0.157	0.038	0.35	single atom (OH_2)
Ni3	12*i*	1	0.1442	0.5757	0.0154		octahedron $(OH)_2O_4$
O4	12*i*	1	0.5478	0.2422	0.045		single atom P
P5	6*h*	*m*..	0.0041	0.4138	$^1/_4$		tetrahedron O_4
$(OH_2)6$	6*h*	*m*..	0.024	0.204	$^1/_4$	0.42	non-colinear $(OH_2)_2$
(OH)7	6*h*	*m*..	0.108	0.615	$^1/_4$		non-colinear Ni_2
$(OH_2)8$	6*h*	*m*..	0.184	0.3731	$^1/_4$	0.938	single atom (OH_2)
(OH)9	6*h*	*m*..	0.2337	0.5864	$^1/_4$		non-coplanar square Ni_4
$(OH_2)10$	6*h*	*m*..	0.309	0.284	$^1/_4$		single atom Ni
M11	6*h*	*m*..	0.357	0.038	$^1/_4$		single atom P
(OH)12	6*h*	*m*..	0.412	0.186	$^1/_4$		single atom P
Ni13	6*h*	*m*..	0.4324	0.3973	$^1/_4$		octahedron $O_4(OH_2)(OH)$
O14	6*h*	*m*..	0.5072	0.0782	$^1/_4$		single atom P
P15	6*h*	*m*..	0.511	0.2544	$^1/_4$		tetrahedron $O_3(OH)$
O16	6*h*	*m*..	0.523	0.342	$^1/_4$		single atom P
Ni17	4*f*	3..	$^1/_3$	$^2/_3$	0.102	0.5	7-vertex polyhedron $Ni(OH)_3O_3$

M11 = 0.667O + 0.333OH
Transformation from published data: *y*,*x*,-*z*
Experimental: powder, diffractometer, X-rays, R_B = 0.068

Remarks: Short interatomic distances for partly occupied site(s). Hydrogen atoms are not taken into consideration for Pearson symbol, Wyckoff sequence and atomic environments.

References: [1] Guillou N., Forster P.M., Gao Q., Cheetham A.K., Férey G. (2001), Mater. Sci. Forum 378/381, 576-581. [2] Guillou N., Gao Q., Forster P.M., Chang J.S., Noguès M., Park S.E., Férey G., Cheetham A.K. (2001), Angew. Chem. Int. Ed. 40, 2831-2834.