$H_{0.6}Mg_7[PO_4]_{3.6}[CO_3]_{0.4}[OH]_3$	*hP*70	(186) $P6_3mc$ – $d^2c^6b^3a^2$

$Mg_{12}(Mg,Fe,\square)_2(PO_4,HPO_4,AsO_4)_6(HPO_4,CO_3)_2(OH)_6$ [1], phosphoellenbergerite
Structural features: Columns of edge- and face-linked $Mg(O_4[OH]_2)$ octahedra are interconnected via common vertices and PO_4 tetrahedra (in part replaced by CO_3 trigonal units and $P(O_3[OH])$ tetrahedra) to form a 3D-framework; additional Mg in channels parallel to [001] (delocalized in infinite channels of face-linked O_6 octahedra).

Raade G. et al. (1998) [1]
$C_{0.38}H_{3.62}Mg_{6.68}O_{18.62}P_{3.62}$
$a = 1.2467$, $c = 0.50437$ nm, $c/a = 0.405$, $V = 0.6789$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	12*d*	1	0.0738	0.3474	0.0118		
Mg2	12*d*	1	0.07821	0.42433	0.3697		octahedron O_6
O3	6*c*	.*m*.	0.3971	0.6029	0.2562		
O4	6*c*	.*m*.	0.5231	0.4769	0.1751		non-coplanar square Mg_4
O5	6*c*	.*m*.	0.8106	0.1893	0.0812		
P6	6*c*	.*m*.	0.837	0.163	0.3567	0.1	
P7	6*c*	.*m*.	0.8483	0.1516	0.3508	0.9	
O8	6*c*	.*m*.	0.9182	0.0817	0.309		single atom P
P9	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.1531	0.62	
C10	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.2777	0.38	
(OH)11	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.8427	0.62	single atom P
Mg12	2*a*	3*m*.	0	0	0.0	0.06	
Mg13	2*a*	3*m*.	0	0	0.113	0.62	
H14	6*c*	.*m*.	0.5485	0.4515	0.2627		

Transformation from published data: origin shift 0 0 0.3403
Experimental: single crystal, diffractometer, X-rays, R = 0.027

Remarks: Natural specimen from Modum, Norway. Composition $Mg_{12}(Mg_{1.32}Fe_{0.17}Ca_{0.11})[(PO_4)_{4.34}(PO_3OH)_{0.79}(AsO_4)_{0.58}(SO_4)_{0.15}(SiO_4)_{0.14}][(PO_3OH)_{1.24}(CO_3)_{0.76}](OH)_6$ from electron microprobe analysis. 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] Raade G., Romming C., Medenbach O. (1998), Mineral. Petrol. 62, 89-101.