$(Sr_{0.998}Eu_{0.002})_5[PO_4]_3Cl_{0.5}F_{0.5}$	*hP*48	(176) $P6_3/m$ – ih^4fe^2

$Sr_{4.99}Eu_{0.01}(PO_4)_3Cl_{0.5}F_{0.5}$ [1], apatite family
Structural features: Infinite columns of base-linked $(Sr,Eu)O_6O_3$ tricapped trigonal prisms share atoms with PO_4 tetrahedra to form a 3D-framework; Cl (near octahedron centers) and F (near trigonal voids) in infinite columns of face-linked $(Sr,Eu)_6$ octahedra parallel to [001] (partial disorder).

Nötzold D., Wulff H. (1998) [1]
$Cl_{0.50}Eu_{0.01}F_{0.50}O_{12}P_3Sr_{4.99}$
$a = 0.98042$, $c = 0.72357$ nm, $c/a = 0.738$, $V = 0.6023$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	12*i*	1	0.3365	0.0601	0.0693		single atom P
O2	6*h*	*m*..	0.144	0.4756	$^1/_4$		single atom P
M3	6*h*	*m*..	0.2484	0.2591	$^1/_4$		
P4	6*h*	*m*..	0.4002	0.0324	$^1/_4$		tetrahedron O_4
O5	6*h*	*m*..	0.5903	0.1282	$^1/_4$		single atom P
M6	4*f*	3..	$^1/_3$	$^2/_3$	0.0002		trigonal prism O_6
Cl7	4*e*	3..	0	0	0.0426	0.25	
F8	4*e*	3..	0	0	0.2045	0.25	

M3 = 0.998Sr + 0.002Eu; M6 = 0.998Sr + 0.002Eu
Transformation from published data: *y*,*x*,-*z*
Experimental: powder, diffractometer, X-rays

Remarks: A similar structure was proposed for human tooth enamel in [2], where, however, CO_3 could not be located. Short interatomic distances for partly occupied site(s).

References: [1] Nötzold D., Wulff H. (1998), Phys. Status Solidi B 207, 271-282. [2] Young R.A., Mackie P.E. (1980), Mater. Res. Bull. 15, 17-29.