$Sm_{10}Ni_{20.8}P_{15}$	*hP*98	(176) $P6_3/m$ – $h^{16}d$

$Sm_{20}Ni_{41.6}P_{30}$ [1]
Structural features: Infinite columns of base-linked PSm_6Ni_3, $P(Sm_4Ni_2)Ni_3$ and $P(Sm_2Ni_4)Ni_3$ tricapped trigonal prisms (split site for the latter) share atoms to form a 3D-framework with AlB_2-type columns (21 prisms in the dented triangular cross-section) and channels of hexagonal cross-section parallel to [001].

Chykhrii S.I. et al. (1993) [1]
$Ni_{20.85}P_{15}Sm_{10}$
a = 2.0448, c = 0.3877 nm, c/a = 0.190, V = 1.4039 nm^3, Z = 2

site	Wyck.	sym.	x	y	z	occ.	atomic environment
Ni1	6*h*	*m*..	0.0274	0.3708	$^1/_4$		cuboctahedron $P_4Ni_4Sm_4$
Ni2	6*h*	*m*..	0.0661	0.2051	$^1/_4$		
P3	6*h*	*m*..	0.082	0.509	$^1/_4$		square pyramid Ni_5
Ni4	6*h*	*m*..	0.098	0.0047	$^1/_4$	0.18	
P5	6*h*	*m*..	0.116	0.332	$^1/_4$		square pyramid Ni_5
Ni6	6*h*	*m*..	0.1274	0.0486	$^1/_4$	0.77	
P7	6*h*	*m*..	0.161	0.167	$^1/_4$		
Ni8	6*h*	*m*..	0.2061	0.5828	$^1/_4$		tricapped trigonal prism P_3Sm_6
Ni9	6*h*	*m*..	0.2417	0.4126	$^1/_4$		tricapped trigonal prism P_3Sm_6
Ni10	6*h*	*m*..	0.2876	0.2408	$^1/_4$		cuboctahedron $P_4Ni_4Sm_4$
Sm11	6*h*	*m*..	0.2894	0.0897	$^1/_4$		
P12	6*h*	*m*..	0.294	0.547	$^1/_4$		tricapped trigonal prism Ni_3Sm_6
P13	6*h*	*m*..	0.319	0.369	$^1/_4$		tricapped trigonal prism Ni_5Sm_4
Sm14	6*h*	*m*..	0.4581	0.2981	$^1/_4$		21-vertex polyhedron $Ni_8P_7Sm_6$
Sm15	6*h*	*m*..	0.4951	0.1219	$^1/_4$		21-vertex polyhedron $P_7Ni_8Sm_6$
Ni16	6*h*	*m*..	0.5528	0.0098	$^1/_4$		cuboctahedron $P_4Ni_4Sm_4$
Sm17	2*d*	-6..	$^2/_3$	$^1/_3$	$^1/_4$		pseudo Frank-Kasper $P_6Ni_6Sm_8$

Transformation from published data: origin shift 0 0 $^1/_2$
Experimental: single crystal, diffractometer, X-rays, wR = 0.046

Remarks: Short interatomic distances for partly occupied site(s).

References: [1] Chykhrii S.I., Babizhets'kii V.S., Oryshchyn S.V., Aksel'rud L.G., Kuz'ma Y.B. (1993), Crystallogr. Rep. 38, 569-571 (Kristallografiya 38(4), 262-265).