

Cu₁₉Ce₅P₁₂*hP45*(189) *P*-62*m* – $k^2j^2ig^2f^2ca$ **Ce₅Cu₁₉P₁₂** [1]

Structural features: Infinite columns of base-linked P(Ce₂Cu₄)Cu₃ and P(Ce₄Cu₂)Cu₃ tricapped trigonal prisms (site splitting ignored) share atoms to form a 3D-framework (a framework of base- and edge-linked P(Ce₂Cu₄) prisms with 6-fold prism columns shifted by $c/2$ in channels). Variant of Ho₅Ni₁₉P₁₂ with splitting of the site that is occupied by Hf in Hf₂Co₄P₃ but Ni in Ho₅Ni₁₉P₁₂.

Chykhrii S.I. et al. (1997) [1]

Ce₅Cu₁₉P₁₂ $a = 1.269$, $c = 0.3922$ nm, $c/a = 0.309$, $V = 0.5470$ nm³, $Z = 1$

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
P1	6 <i>k</i>	<i>m</i> ..	0.1726	0.4842	$\frac{1}{2}$		square pyramid Cu ₅
Cu2	6 <i>k</i>	<i>m</i> ..	0.3622	0.4803	$\frac{1}{2}$		tetrahedron P ₄
Cu3	6 <i>j</i>	<i>m</i> ..	0.0318	0.4683	0	0.25	
Cu4	6 <i>j</i>	<i>m</i> ..	0.1743	0.3795	0		trigonal bipyramid P ₄ Cu
Cu5	6 <i>i</i>	.. <i>m</i>	0.4542	0	0.072	0.25	
Cu6	3 <i>g</i>	<i>m2m</i>	0.2893	0	$\frac{1}{2}$		tetrahedron P ₄
Ce7	3 <i>g</i>	<i>m2m</i>	0.8099	0	$\frac{1}{2}$		22-vertex polyhedron P ₈ Cu ₁₀ Ce ₄
P8	3 <i>f</i>	<i>m2m</i>	0.1751	0	0		square pyramid Cu ₅
P9	3 <i>f</i>	<i>m2m</i>	0.6348	0	0		
Ce10	2 <i>c</i>	-6..	$\frac{1}{3}$	$\frac{2}{3}$	0		18-vertex polyhedron P ₆ Cu ₁₂
Cu11	1 <i>a</i>	-62 <i>m</i>	0	0	0		coplanar triangle P ₃

Transformation from published data: -*x*, -*y*, -*z*Experimental: single crystal, diffractometer, X-rays, $R = 0.054$

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

References: [1] Chykhrii S.I., Loukashouk G.V., Oryshchyn S.V., Kuz'ma Y.B. (1997), J. Alloys Compd. 248, 224-232.