$LuMn_5$	*hP*12	(186) $P6_3mc$ – cb^2a

$LuMn_5$ [1]
Structural features: $Lu(Mn_{16})$ and $Mn(Lu_4Mn_{12})$ Friauf polyhedra (Mn_{12} truncated tetrahedron + Mn_4/Lu_4 tetrahedron) share faces of the truncated tetrahedra to form a 3D-framework. Kagomé-mesh Mn_3 and puckered triangle-mesh $LuMn_2$ layers alternate along [001]. Substitution derivative of $MgZn_2$ (hexagonal Laves phase). Tetrahedrally close-packed structure (Frank-Kasper phase).

Wang F.E., Gilfrich J.V. (1966) [1]
$LuMn_5$
$a = 0.5186$, $c = 0.8566$ nm, $c/a = 1.652$, $V = 0.1995$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
Mn1	6*c*	.*m*.	0.833	0.167	0.232		icosahedron Mn_9Lu_3
Mn2	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.043		16-vertex Frank-Kasper $Mn_{12}Lu_4$
Lu3	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.435		16-vertex Frank-Kasper Mn_{16}
Mn4	2*a*	3*m*.	0	0	0.000		icosahedron Mn_9Lu_3

Transformation from published data: -*x*,-*y*,-*z*; origin shift 0 0 0.815
Experimental: single crystal, precession and Weissenberg photographs, X-rays, R = 0.090
Remarks: In table 3 of [1] the *z*-coordinate of former Mn(b) is misprinted as 0.358 instead of -0.358 (checked on interatomic distances); on page 479 the cell volume is misprinted as 184.7 Å^3 instead of 199.5 Å^3.

References: [1] Wang F.E., Gilfrich J.V. (1966), Acta Crystallogr. 21, 476-481.