$U_2Al_3C_4$	*hP*18	(186) $P6_3mc$ – b^5a^4

$U_2Al_3C_4$ [1]
Structural features: Close-packed U and Al layers in hc_4 stacking (-Al-Al-U-U-Al-); C in octahedral and trigonal bipyramidal voids. Slabs of edge-linked CU_6 and $C(U_3Al_3)$ octahedra are interconnected via vertex-linked CAl_5 trigonal bipyramids to form a 3D-framework.

Gesing T.M., Jeitschko W. (1995) [1]
$Al_3C_4U_2$
a = 0.3422, c = 2.323 nm, c/a = 6.788, V = 0.2356 nm^3, Z = 2

site	Wyck.	sym.	x	y	z	occ.	atomic environment
Al1	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.006		non-coplanar triangle C_3
C2	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.117		non-coplanar triangle Al_3
U3	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.31107		octahedron C_6
U4	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.68654		octahedron C_6
C5	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.887		non-coplanar triangle Al_3
C6	2*a*	3*m*.	0	0	0.0		trigonal bipyramid Al_5
Al7	2*a*	3*m*.	0	0	0.0861		tetrahedron C_4
C8	2*a*	3*m*.	0	0	0.249		octahedron U_6
Al9	2*a*	3*m*.	0	0	0.4129		tetrahedron C_4

Transformation from published data: -*x*,-*y*,-*z*; origin shift 0 0 0.251
Experimental: twinned crystal, diffractometer, X-rays, R = 0.030

Remarks: Space group (194) $P6_3/mmc$ with splitting of the Al site near Wyckoff position 2*b* was tested and rejected (R = 0.028).

References: [1] Gesing T.M., Jeitschko W. (1995), Z. Naturforsch. B 50, 196-200.