$Mg_{0.2}(Al_{0.4}Si_{0.6})O_2$	*hP*12	(180) $P6_222$ – ida

$MgAl_2Si_3O_{10}$ [1]
Structural features: $(Si,Al)O_4$ tetrahedra share vertices to form a 3D-framework with twisted chains; Mg in narrow channels of hexagonal cross-section parallel to [001]. Filled-up derivative of SiO_2 β-quartz.

Schulz H. et al. (1971) [1]
$Al_{0.40}Mg_{0.20}O_2Si_{0.60}$
$a = 0.5182$, $c = 0.536$ nm, $c/a = 1.034$, $V = 0.1246$ nm^3, $Z = 3$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	6*i*	..2	0.2044	0.4088	0		coplanar triangle Si_2Mg
M2	3*d*	222	$^1/_2$	0	$^1/_2$		tetrahedron O_4
Mg3	3*a*	222	0	0	0	0.2	coplanar square Mg_2O_2

M2 = 0.6Si + 0.4Al
Transformation from published data: origin shift 0 0 $^1/_2$
Experimental: single crystal, diffractometer, X-rays, R = 0.065

Remarks: Average structure. We assigned an approximate value to the Al/Si ratio of site M2 based on the nominal composition. Short interatomic distances for partly occupied site(s). Refinement considering partial occupation of Wyckoff position 3*b* by Mg (proposed in [2]) showed no significant deviation from zero occupancy. An alternative model with all sites in split positions gave R = 0.055.

References: [1] Schulz H., Hoffmann W., Muchow G.M. (1971), Z. Kristallogr. 134, 1-27. [2] Schulz H. (1971), Z. Kristallogr. 134, 253-261.