$BaCa[SiO_4]$	*hP*56	(186) $P6_3mc$ – dc^6b^3a

$BaCaSiO_4$ [1]
Structural features: Single SiO_4 tetrahedra share atoms with distorted CaO_6 octahedra and CaO_6O_3 tricapped trigonal prisms.

Il'inets A.M., Bikbau M.Y. (1989) [1]
$BaCaO_4Si$
a = 1.10189, c = 0.70164 nm, c/a = 0.637, V = 0.7378 nm^3, Z = 8

site	Wyck.	sym.	x	y	z	occ.	atomic environment
O1	12*d*	1	0.092	0.417	0.311		single atom Si
O2	6*c*	.*m*.	0.085	0.915	0.269		single atom Si
Si3	6*c*	.*m*.	0.1678	0.8321	0.2302		tetrahedron O_4
O4	6*c*	.*m*.	0.196	0.804	0.011		single atom Si
Ca5	6*c*	.*m*.	0.4826	0.5174	0.005		tricapped trigonal prism O_9
O6	6*c*	.*m*.	0.593	0.407	0.166		single atom Si
Ba7	6*c*	.*m*.	0.832	0.168	0.1884		single atom O
O8	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.003		single atom Si
Ba9	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.3342		10-vertex polyhedron O_{10}
Si10	2*b*	3*m*.	$^1/_3$	$^2/_3$	0.778		tetrahedron O_4
Ca11	2*a*	3*m*.	0	0	0.0		octahedron O_6

Transformation from published data: origin shift 0 0 0.283
Experimental: single crystal, diffractometer, X-rays, R = 0.051

References: [1] Il'inets A.M., Bikbau M.Y. (1989), Sov. Phys. Crystallogr. 34, 677-679 (Kristallografiya 34, 1123-1126).