YBO_3	*hP*18	(176) $P6_3/m - h^2fb$

YBO_3 [1]; Y_2AlSiO_5N [3]
Structural features: 3-rings of vertex-linked BO_4 tetrahedra arranged in layers (partial disorder) share atoms with distorted YO_8 cubes (split O site) to form a 3D-framework.

Chadeyron G. et al. (1997) [1]
BO_3Y
$a = 0.3776$, $c = 0.8806$ nm, $c/a = 2.332$, $V = 0.1087$ nm^3, $Z = 2$

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
B1	6*h*	*m*..	0.151	0.565	$^1/_4$	0.333	
O2	6*h*	*m*..	0.226	0.107	$^1/_4$	0.333	non-colinear O_2
O3	4*f*	3..	$^1/_3$	$^2/_3$	0.1103		
Y4	2*b*	-3..	0	0	0		icosahedron O_{12}

Transformation from published data: *y*,*x*,-*z*; origin shift 0 0 $^1/_2$
Experimental: single crystal, diffractometer, X-rays, R = 0.035, T = 293 K

Remarks: Short interatomic distances for partly occupied site(s). Superseded a structure proposal with B in trigonal coordination in [2]. 4-fold coordination of B was confirmed by IR and NMR spectroscopy, the presence of two different environments of Y by Eu^{3+} luminescence studies. The similar model proposed for so-called B-(AlNOSiY) in [3] was rejected in favor of an alternative model with N in Wyckoff position 2*b* ($R_B = 0.036$).

References: [1] Chadeyron G., El Ghozzi M., Mahiou R., Arbus A., Cousseins J.C. (1997), J. Solid State Chem. 128, 261-266. [2] Newnham R.E., Redman M.J., Santoro R.P. (1963), J. Am. Ceram. Soc. 46, 253-256. [3] Gonon M.F., Descamps D.C., Cambier F., Thompson D.P. (2000), Mater. Sci. Forum 325/326, 325-333.