

SG No. 106  $C_{4v}^8$   $P4_2bc$  [ tetragonal ]

\* plus set: +[0, 0, 0]

\* Wyckoff site: 4a, site symmetry: 2..

Table 1: Wyckoff bond: 4a@4a

No.	vector	center	mapping
1	[X, Y, 0]	[0, 0, z]	[1, -2]
2	[-Y, X, 0]	[0, 0, $z + \frac{1}{2}$ ]	[3, -4]
3	[X, -Y, 0]	[\frac{1}{2}, \frac{1}{2}, z]	[5, -6]
4	[-Y, -X, 0]	[\frac{1}{2}, \frac{1}{2}, $z + \frac{1}{2}$ ]	[7, -8]

Table 2: Wyckoff bond: 4b@4a

No.	vector	center	mapping
1	[0, 0, Z]	[0, 0, z]	[1, 2]
2	[0, 0, Z]	[0, 0, $z + \frac{1}{2}$ ]	[3, 4]
3	[0, 0, Z]	[\frac{1}{2}, \frac{1}{2}, z]	[5, 6]
4	[0, 0, Z]	[\frac{1}{2}, \frac{1}{2}, $z + \frac{1}{2}$ ]	[7, 8]

Table 3: Wyckoff bond: 8c@4a

No.	vector	center	mapping
1	[X, Y, Z]	[0, 0, z]	[1]
2	[-X, -Y, Z]	[0, 0, z]	[2]
3	[-Y, X, Z]	[0, 0, $z + \frac{1}{2}$ ]	[3]
4	[Y, -X, Z]	[0, 0, $z + \frac{1}{2}$ ]	[4]
5	[X, -Y, Z]	[\frac{1}{2}, \frac{1}{2}, z]	[5]
6	[-X, Y, Z]	[\frac{1}{2}, \frac{1}{2}, z]	[6]
7	[-Y, -X, Z]	[\frac{1}{2}, \frac{1}{2}, $z + \frac{1}{2}$ ]	[7]
8	[Y, X, Z]	[\frac{1}{2}, \frac{1}{2}, $z + \frac{1}{2}$ ]	[8]

\* Wyckoff site: 4b, site symmetry: 2..

Table 4: Wyckoff bond: 4a@4b

No.	vector	center	mapping
1	[X, Y, 0]	[0, $\frac{1}{2}$ , z]	[1, -2]
2	[-Y, X, 0]	[\frac{1}{2}, 0, $z + \frac{1}{2}$ ]	[3, -4]
3	[X, -Y, 0]	[\frac{1}{2}, 0, z]	[5, -6]
4	[-Y, -X, 0]	[0, $\frac{1}{2}$ , $z + \frac{1}{2}$ ]	[7, -8]

Table 5: Wyckoff bond: 4b@4b

No.	vector	center	mapping
1	$[0, 0, Z]$	$[0, \frac{1}{2}, z]$	[1,2]
2	$[0, 0, Z]$	$[\frac{1}{2}, 0, z + \frac{1}{2}]$	[3,4]
3	$[0, 0, Z]$	$[\frac{1}{2}, 0, z]$	[5,6]
4	$[0, 0, Z]$	$[0, \frac{1}{2}, z + \frac{1}{2}]$	[7,8]

Table 6: Wyckoff bond: 8c@4b

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, \frac{1}{2}, z]$	[1]
2	$[-X, -Y, Z]$	$[0, \frac{1}{2}, z]$	[2]
3	$[-Y, X, Z]$	$[\frac{1}{2}, 0, z + \frac{1}{2}]$	[3]
4	$[Y, -X, Z]$	$[\frac{1}{2}, 0, z + \frac{1}{2}]$	[4]
5	$[X, -Y, Z]$	$[\frac{1}{2}, 0, z]$	[5]
6	$[-X, Y, Z]$	$[\frac{1}{2}, 0, z]$	[6]
7	$[-Y, -X, Z]$	$[0, \frac{1}{2}, z + \frac{1}{2}]$	[7]
8	$[Y, X, Z]$	$[0, \frac{1}{2}, z + \frac{1}{2}]$	[8]

\* Wyckoff site: 8c, site symmetry: 1

Table 7: Wyckoff bond: 8a@8c

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, y, z]$	[1]
2	$[-X, -Y, Z]$	$[-x, -y, z]$	[2]
3	$[-Y, X, Z]$	$[-y, x, z + \frac{1}{2}]$	[3]
4	$[Y, -X, Z]$	$[y, -x, z + \frac{1}{2}]$	[4]
5	$[X, -Y, Z]$	$[x + \frac{1}{2}, \frac{1}{2} - y, z]$	[5]
6	$[-X, Y, Z]$	$[\frac{1}{2} - x, y + \frac{1}{2}, z]$	[6]
7	$[-Y, -X, Z]$	$[\frac{1}{2} - y, \frac{1}{2} - x, z + \frac{1}{2}]$	[7]
8	$[Y, X, Z]$	$[y + \frac{1}{2}, x + \frac{1}{2}, z + \frac{1}{2}]$	[8]