

SG No. 133 D_{4h}^{11} $P4_2/nbc$ [tetragonal]

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

Table 1: Wyckoff site: 4a, site symmetry: 222.

No.	position	mapping
1	$[\frac{1}{4}, \frac{1}{4}, 0]$	[1,2,5,6]
2	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}]$	[3,4,7,8]
3	$[\frac{3}{4}, \frac{3}{4}, 0]$	[9,10,13,14]
4	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}]$	[11,12,15,16]

Table 2: Wyckoff site: 4b, site symmetry: 222.

No.	position	mapping
1	$[\frac{3}{4}, \frac{1}{4}, 0]$	[1,2,5,6]
2	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}]$	[3,4,7,8]
3	$[\frac{1}{4}, \frac{3}{4}, 0]$	[9,10,13,14]
4	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}]$	[11,12,15,16]

Table 3: Wyckoff site: 4c, site symmetry: 2.22

No.	position	mapping
1	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{4}]$	[1,2,7,8]
2	$[\frac{1}{4}, \frac{1}{4}, \frac{3}{4}]$	[3,4,5,6]
3	$[\frac{3}{4}, \frac{3}{4}, \frac{3}{4}]$	[9,10,15,16]
4	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{4}]$	[11,12,13,14]

Table 4: Wyckoff site: 4d, site symmetry: $-4..$

No.	position	mapping
1	$[\frac{3}{4}, \frac{1}{4}, \frac{3}{4}]$	[1,2,11,12]
2	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{4}]$	[3,4,9,10]
3	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{4}]$	[5,6,15,16]
4	$[\frac{1}{4}, \frac{3}{4}, \frac{3}{4}]$	[7,8,13,14]

Table 5: Wyckoff site: 8e, site symmetry: -1

No.	position	mapping
1	[0, 0, 0]	[1,9]

continued ...

Table 5

No.	position	mapping
2	$[\frac{1}{2}, \frac{1}{2}, 0]$	[2, 10]
3	$[\frac{1}{2}, 0, \frac{1}{2}]$	[3, 11]
4	$[0, \frac{1}{2}, \frac{1}{2}]$	[4, 12]
5	$[\frac{1}{2}, 0, 0]$	[5, 13]
6	$[0, \frac{1}{2}, 0]$	[6, 14]
7	$[0, 0, \frac{1}{2}]$	[7, 15]
8	$[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}]$	[8, 16]

Table 6: Wyckoff site: 8f, site symmetry: 2..

No.	position	mapping
1	$[\frac{1}{4}, \frac{1}{4}, z]$	[1, 2]
2	$[\frac{1}{4}, \frac{1}{4}, z + \frac{1}{2}]$	[3, 4]
3	$[\frac{1}{4}, \frac{1}{4}, -z]$	[5, 6]
4	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{2} - z]$	[7, 8]
5	$[\frac{3}{4}, \frac{3}{4}, -z]$	[9, 10]
6	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{2} - z]$	[11, 12]
7	$[\frac{3}{4}, \frac{3}{4}, z]$	[13, 14]
8	$[\frac{3}{4}, \frac{3}{4}, z + \frac{1}{2}]$	[15, 16]

Table 7: Wyckoff site: 8g, site symmetry: 2..

No.	position	mapping
1	$[\frac{3}{4}, \frac{1}{4}, z]$	[1, 2]
2	$[\frac{1}{4}, \frac{3}{4}, z + \frac{1}{2}]$	[3, 4]
3	$[\frac{3}{4}, \frac{1}{4}, -z]$	[5, 6]
4	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{2} - z]$	[7, 8]
5	$[\frac{1}{4}, \frac{3}{4}, -z]$	[9, 10]
6	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{2} - z]$	[11, 12]
7	$[\frac{1}{4}, \frac{3}{4}, z]$	[13, 14]
8	$[\frac{3}{4}, \frac{1}{4}, z + \frac{1}{2}]$	[15, 16]

Table 8: Wyckoff site: 8h, site symmetry: .2.

No.	position	mapping
1	$[x, \frac{1}{4}, 0]$	[1, 6]
2	$[\frac{1}{2} - x, \frac{1}{4}, 0]$	[2, 5]
3	$[\frac{1}{4}, x, \frac{1}{2}]$	[3, 7]
4	$[\frac{1}{4}, \frac{1}{2} - x, \frac{1}{2}]$	[4, 8]

continued ...

Table 8

No.	position	mapping
5	$[-x, \frac{3}{4}, 0]$	[9,14]
6	$[x + \frac{1}{2}, \frac{3}{4}, 0]$	[10,13]
7	$[\frac{3}{4}, -x, \frac{1}{2}]$	[11,15]
8	$[\frac{3}{4}, x + \frac{1}{2}, \frac{1}{2}]$	[12,16]

Table 9: Wyckoff site: 8i, site symmetry: .2.

No.	position	mapping
1	$[x, \frac{1}{4}, \frac{1}{2}]$	[1,6]
2	$[\frac{1}{2} - x, \frac{1}{4}, \frac{1}{2}]$	[2,5]
3	$[\frac{1}{4}, x, 0]$	[3,7]
4	$[\frac{1}{4}, \frac{1}{2} - x, 0]$	[4,8]
5	$[-x, \frac{3}{4}, \frac{1}{2}]$	[9,14]
6	$[x + \frac{1}{2}, \frac{3}{4}, \frac{1}{2}]$	[10,13]
7	$[\frac{3}{4}, -x, 0]$	[11,15]
8	$[\frac{3}{4}, x + \frac{1}{2}, 0]$	[12,16]

Table 10: Wyckoff site: 8j, site symmetry: . . 2

No.	position	mapping
1	$[x, x, \frac{1}{4}]$	[1,7]
2	$[\frac{1}{2} - x, \frac{1}{2} - x, \frac{1}{4}]$	[2,8]
3	$[\frac{1}{2} - x, x, \frac{3}{4}]$	[3,5]
4	$[x, \frac{1}{2} - x, \frac{3}{4}]$	[4,6]
5	$[-x, -x, \frac{3}{4}]$	[9,15]
6	$[x + \frac{1}{2}, x + \frac{1}{2}, \frac{3}{4}]$	[10,16]
7	$[x + \frac{1}{2}, -x, \frac{1}{4}]$	[11,13]
8	$[-x, x + \frac{1}{2}, \frac{1}{4}]$	[12,14]

Table 11: Wyckoff site: 16k, site symmetry: 1

No.	position	mapping
1	$[x, y, z]$	[1]
2	$[\frac{1}{2} - x, \frac{1}{2} - y, z]$	[2]
3	$[\frac{1}{2} - y, x, z + \frac{1}{2}]$	[3]
4	$[y, \frac{1}{2} - x, z + \frac{1}{2}]$	[4]
5	$[\frac{1}{2} - x, y, -z]$	[5]
6	$[x, \frac{1}{2} - y, -z]$	[6]
7	$[y, x, \frac{1}{2} - z]$	[7]

continued ...

Table 11

No.	position	mapping
8	$[\frac{1}{2} - y, \frac{1}{2} - x, \frac{1}{2} - z]$	[8]
9	$[-x, -y, -z]$	[9]
10	$[x + \frac{1}{2}, y + \frac{1}{2}, -z]$	[10]
11	$[y + \frac{1}{2}, -x, \frac{1}{2} - z]$	[11]
12	$[-y, x + \frac{1}{2}, \frac{1}{2} - z]$	[12]
13	$[x + \frac{1}{2}, -y, z]$	[13]
14	$[-x, y + \frac{1}{2}, z]$	[14]
15	$[-y, -x, z + \frac{1}{2}]$	[15]
16	$[y + \frac{1}{2}, x + \frac{1}{2}, z + \frac{1}{2}]$	[16]