SG No. 208 O^2 $P4_232$ [cubic]

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

Table 1: Wyckoff site: `2a`, site symmetry: `23.`

No.	position	mapping
1	$[0,\ 0,\ 0]$	`[1,2,3,4,5,6,7,8,9,10,11,12]`
2	$\left[\frac{1}{2},\ \frac{1}{2},\ \frac{1}{2}\right]$	`[13,14,15,16,17,18,19,20,21,22,23,24]`

Table 2: Wyckoff site: `4b`, site symmetry: `.32`

No.	position	mapping
1	$\left[\frac{1}{4},\ \frac{1}{4},\ \frac{1}{4}\right]$	`[1,5,9,14,19,24]`
2	$\left[\frac{3}{4},\ \frac{3}{4},\ \frac{1}{4}\right]$	`[2,7,12,13,17,21]`
3	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{3}{4}\right]$	`[3,8,10,15,20,22]`
4	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{3}{4}\right]$	`[4,6,11,16,18,23]`

Table 3: Wyckoff site: `4c`, site symmetry: `.32`

No.	position	mapping
1	$\left[\frac{3}{4},\ \frac{3}{4},\ \frac{3}{4}\right]$	`[1,5,9,14,19,24]`
2	$\left[\frac{1}{4},\ \frac{1}{4},\ \frac{3}{4}\right]$	`[2,7,12,13,17,21]`
3	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{4}\right]$	`[3,8,10,15,20,22]`
4	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{4}\right]$	`[4,6,11,16,18,23]`

Table 4: Wyckoff site: `6d`, site symmetry: `222..`

No.	position	mapping
1	$\left[0,\ \frac{1}{2},\ \frac{1}{2}\right]$	`[1,2,3,4]`
2	$\left[\frac{1}{2},\ 0,\ \frac{1}{2}\right]$	`[5,6,7,8]`
3	$\left[\frac{1}{2},\ \frac{1}{2},\ 0\right]$	`[9,10,11,12]`
4	$\left[0,\ \frac{1}{2},\ 0\right]$	`[13,14,15,16]`
5	$\left[\frac{1}{2},\ 0,\ 0\right]$	`[17,18,19,20]`
6	$\left[0,\ 0,\ \frac{1}{2}\right]$	`[21,22,23,24]`

Table 5: Wyckoff site: `6e`, site symmetry: `2.22`

No.	position	mapping
1	$\left[\frac{1}{4},\ 0,\ \frac{1}{2}\right]$	`[1,4,18,19]`

continued ...

Table 5

No.	position	mapping
2	$\left[\frac{3}{4}, 0, \frac{1}{2}\right]$	[2,3,17,20]
3	$\left[\frac{1}{2}, \frac{1}{4}, 0\right]$	[5,8,14,15]
4	$\left[\frac{1}{2}, \frac{3}{4}, 0\right]$	[6,7,13,16]
5	$\left[0, \frac{1}{2}, \frac{1}{4}\right]$	[9,12,21,24]
6	$\left[0, \frac{1}{2}, \frac{3}{4}\right]$	[10,11,22,23]

Table 6: Wyckoff site: 6f, site symmetry: 2.22

No.	position	mapping
1	$\left[\frac{1}{4}, \frac{1}{2}, 0\right]$	[1,4,18,19]
2	$\left[\frac{3}{4}, \frac{1}{2}, 0\right]$	[2,3,17,20]
3	$\left[0, \frac{1}{4}, \frac{1}{2}\right]$	[5,8,14,15]
4	$\left[0, \frac{3}{4}, \frac{1}{2}\right]$	[6,7,13,16]
5	$\left[\frac{1}{2}, 0, \frac{1}{4}\right]$	[9,12,21,24]
6	$\left[\frac{1}{2}, 0, \frac{3}{4}\right]$	[10,11,22,23]

Table 7: Wyckoff site: 8g, site symmetry: .3.

No.	position	mapping
1	$[x, x, x]$	[1,5,9]
2	$[-x, -x, x]$	[2,7,12]
3	$[-x, x, -x]$	[3,8,10]
4	$[x, -x, -x]$	[4,6,11]
5	$\left[x+\frac{1}{2}, x+\frac{1}{2}, \frac{1}{2}-x\right]$	[13,17,21]
6	$\left[\frac{1}{2}-x, \frac{1}{2}-x, \frac{1}{2}-x\right]$	[14,19,24]
7	$\left[x+\frac{1}{2}, \frac{1}{2}-x, x+\frac{1}{2}\right]$	[15,20,22]
8	$\left[\frac{1}{2}-x, x+\frac{1}{2}, x+\frac{1}{2}\right]$	[16,18,23]

Table 8: Wyckoff site: 12h, site symmetry: 2..

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

continued ...

Table 8

No.	position	mapping
9	$\left[x+\frac{1}{2},\ \frac{1}{2},\ \frac{1}{2}\right]$	[17,20]
10	$\left[\frac{1}{2}-x,\ \frac{1}{2},\ \frac{1}{2}\right]$	[18,19]
11	$\left[\frac{1}{2},\ \frac{1}{2},\ \frac{1}{2}-x\right]$	[21,24]
12	$\left[\frac{1}{2},\ \frac{1}{2},\ x+\frac{1}{2}\right]$	[22,23]

Table 9: Wyckoff site: 12i, site symmetry: 2..

No.	position	mapping
1	$\left[x,\ 0,\ \frac{1}{2}\right]$	[1,4]
2	$\left[-x,\ 0,\ \frac{1}{2}\right]$	[2,3]
3	$\left[\frac{1}{2},\ x,\ 0\right]$	[5,8]
4	$\left[\frac{1}{2},\ -x,\ 0\right]$	[6,7]
5	$\left[0,\ \frac{1}{2},\ x\right]$	[9,12]
6	$\left[0,\ \frac{1}{2},\ -x\right]$	[10,11]
7	$\left[\frac{1}{2},\ x+\frac{1}{2},\ 0\right]$	[13,16]
8	$\left[\frac{1}{2},\ \frac{1}{2}-x,\ 0\right]$	[14,15]
9	$\left[x+\frac{1}{2},\ 0,\ \frac{1}{2}\right]$	[17,20]
10	$\left[\frac{1}{2}-x,\ 0,\ \frac{1}{2}\right]$	[18,19]
11	$\left[0,\ \frac{1}{2},\ \frac{1}{2}-x\right]$	[21,24]
12	$\left[0,\ \frac{1}{2},\ x+\frac{1}{2}\right]$	[22,23]

Table 10: Wyckoff site: 12j, site symmetry: 2..

No.	position	mapping
1	$\left[x,\ \frac{1}{2},\ 0\right]$	[1,4]
2	$\left[-x,\ \frac{1}{2},\ 0\right]$	[2,3]
3	$\left[0,\ x,\ \frac{1}{2}\right]$	[5,8]
4	$\left[0,\ -x,\ \frac{1}{2}\right]$	[6,7]
5	$\left[\frac{1}{2},\ 0,\ x\right]$	[9,12]
6	$\left[\frac{1}{2},\ 0,\ -x\right]$	[10,11]
7	$\left[0,\ x+\frac{1}{2},\ \frac{1}{2}\right]$	[13,16]
8	$\left[0,\ \frac{1}{2}-x,\ \frac{1}{2}\right]$	[14,15]
9	$\left[x+\frac{1}{2},\ \frac{1}{2},\ 0\right]$	[17,20]
10	$\left[\frac{1}{2}-x,\ \frac{1}{2},\ 0\right]$	[18,19]
11	$\left[\frac{1}{2},\ 0,\ \frac{1}{2}-x\right]$	[21,24]
12	$\left[\frac{1}{2},\ 0,\ x+\frac{1}{2}\right]$	[22,23]

Table 11: Wyckoff site: `12k`, site symmetry: `..2`

No.	position	mapping
1	$\left[\frac{1}{4},\ y,\ \frac{1}{2}-y\right]$	`[1,19]`
2	$\left[\frac{3}{4},\ -y,\ \frac{1}{2}-y\right]$	`[2,17]`
3	$\left[\frac{3}{4},\ y,\ y+\frac{1}{2}\right]$	`[3,20]`
4	$\left[\frac{1}{4},\ -y,\ y+\frac{1}{2}\right]$	`[4,18]`
5	$\left[\frac{1}{2}-y,\ \frac{1}{4},\ y\right]$	`[5,14]`
6	$\left[\frac{1}{2}-y,\ \frac{3}{4},\ -y\right]$	`[6,16]`
7	$\left[y+\frac{1}{2},\ \frac{3}{4},\ y\right]$	`[7,13]`
8	$\left[y+\frac{1}{2},\ \frac{1}{4},\ -y\right]$	`[8,15]`
9	$\left[y,\ \frac{1}{2}-y,\ \frac{1}{4}\right]$	`[9,24]`
10	$\left[-y,\ \frac{1}{2}-y,\ \frac{3}{4}\right]$	`[10,22]`
11	$\left[y,\ y+\frac{1}{2},\ \frac{3}{4}\right]$	`[11,23]`
12	$\left[-y,\ y+\frac{1}{2},\ \frac{1}{4}\right]$	`[12,21]`

Table 12: Wyckoff site: `12l`, site symmetry: `..2`

No.	position	mapping
1	$\left[\frac{1}{4},\ y,\ y+\frac{1}{2}\right]$	`[1,18]`
2	$\left[\frac{3}{4},\ -y,\ y+\frac{1}{2}\right]$	`[2,20]`
3	$\left[\frac{3}{4},\ y,\ \frac{1}{2}-y\right]$	`[3,17]`
4	$\left[\frac{1}{4},\ -y,\ \frac{1}{2}-y\right]$	`[4,19]`
5	$\left[y+\frac{1}{2},\ \frac{1}{4},\ y\right]$	`[5,15]`
6	$\left[y+\frac{1}{2},\ \frac{3}{4},\ -y\right]$	`[6,13]`
7	$\left[\frac{1}{2}-y,\ \frac{3}{4},\ y\right]$	`[7,16]`
8	$\left[\frac{1}{2}-y,\ \frac{1}{4},\ -y\right]$	`[8,14]`
9	$\left[y,\ y+\frac{1}{2},\ \frac{1}{4}\right]$	`[9,21]`
10	$\left[-y,\ y+\frac{1}{2},\ \frac{3}{4}\right]$	`[10,23]`
11	$\left[y,\ \frac{1}{2}-y,\ \frac{3}{4}\right]$	`[11,22]`
12	$\left[-y,\ \frac{1}{2}-y,\ \frac{1}{4}\right]$	`[12,24]`

Table 13: Wyckoff site: `24m`, site symmetry: `1`

No.	position	mapping
1	$[x,\ y,\ z]$	`[1]`
2	$[-x,\ -y,\ z]$	`[2]`
3	$[-x,\ y,\ -z]$	`[3]`
4	$[x,\ -y,\ -z]$	`[4]`
5	$[z,\ x,\ y]$	`[5]`
6	$[z,\ -x,\ -y]$	`[6]`
7	$[-z,\ -x,\ y]$	`[7]`
8	$[-z,\ x,\ -y]$	`[8]`
9	$[y,\ z,\ x]$	`[9]`

continued ...

Table 13

No.	position	mapping
10	$[-y,\, z,\, -x]$	[10]
11	$[y,\, -z,\, -x]$	[11]
12	$[-y,\, -z,\, x]$	[12]
13	$\left[y+\frac{1}{2},\, x+\frac{1}{2},\, \frac{1}{2}-z\right]$	[13]
14	$\left[\frac{1}{2}-y,\, \frac{1}{2}-x,\, \frac{1}{2}-z\right]$	[14]
15	$\left[y+\frac{1}{2},\, \frac{1}{2}-x,\, z+\frac{1}{2}\right]$	[15]
16	$\left[\frac{1}{2}-y,\, x+\frac{1}{2},\, z+\frac{1}{2}\right]$	[16]
17	$\left[x+\frac{1}{2},\, z+\frac{1}{2},\, \frac{1}{2}-y\right]$	[17]
18	$\left[\frac{1}{2}-x,\, z+\frac{1}{2},\, y+\frac{1}{2}\right]$	[18]
19	$\left[\frac{1}{2}-x,\, \frac{1}{2}-z,\, \frac{1}{2}-y\right]$	[19]
20	$\left[x+\frac{1}{2},\, \frac{1}{2}-z,\, y+\frac{1}{2}\right]$	[20]
21	$\left[z+\frac{1}{2},\, y+\frac{1}{2},\, \frac{1}{2}-x\right]$	[21]
22	$\left[z+\frac{1}{2},\, \frac{1}{2}-y,\, x+\frac{1}{2}\right]$	[22]
23	$\left[\frac{1}{2}-z,\, y+\frac{1}{2},\, x+\frac{1}{2}\right]$	[23]
24	$\left[\frac{1}{2}-z,\, \frac{1}{2}-y,\, \frac{1}{2}-x\right]$	[24]