SG No. 194 D_{6h}^4 $P6_3/mmc$ [hexagonal]

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

Table 1: Wyckoff site: `2a`, site symmetry: `-3m.`

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

Table 2: Wyckoff site: `2b`, site symmetry: `-6m2`

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

Table 3: Wyckoff site: `2c`, site symmetry: `-6m2`

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

Table 4: Wyckoff site: `2d`, site symmetry: `-6m2`

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

Table 5: Wyckoff site: `4e`, site symmetry: `3m.`

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

Table 6: Wyckoff site: `4f`, site symmetry: `3m.`

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

Table 7: Wyckoff site: `6g`, site symmetry: `.2/m.`

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

Table 8: Wyckoff site: `6h`, site symmetry: `mm2`

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

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

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

continued ...

Table 9

No.	position	mapping
12	$\left[-x,\, -x,\, \frac{1}{2}\right]$	[18,24]

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

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

Table 11: Wyckoff site: 12k, site symmetry: .m.

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

Table 12: Wyckoff site: 24l, site symmetry: 1

No.	position	mapping
1	$[x,\, y,\, z]$	[1]
2	$[-y,\, x-y,\, z]$	[2]

continued ...

Table 12

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