SG No. 193 D_{6h}^3 $P6_3/mcm$ [hexagonal]

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

Table 1: Wyckoff site: `2a`, site symmetry: `-62m`

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

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

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

Table 3: Wyckoff site: `4c`, site symmetry: `-6..`

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

Table 4: Wyckoff site: `4d`, site symmetry: `3.2`

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

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

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

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

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

Table 7: Wyckoff site: `6g`, site symmetry: `m2m`

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

Table 8: Wyckoff site: `8h`, site symmetry: `3..`

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

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

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

continued ...

Table 9

No.	position	mapping
8	$[2x,\ x,\ 0]$	`[14,22]`
9	$[-x,\ x,\ 0]$	`[15,24]`
10	$\left[x,\ 2x,\ \frac{1}{2}\right]$	`[16,20]`
11	$\left[-2x,\ -x,\ \frac{1}{2}\right]$	`[17,19]`
12	$\left[x,\ -x,\ \frac{1}{2}\right]$	`[18,21]`

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	$\left[y,\ x,\ \frac{1}{4}\right]$	`[7,22]`
8	$\left[x-y,\ -y,\ \frac{1}{4}\right]$	`[8,23]`
9	$\left[-x,\ -x+y,\ \frac{1}{4}\right]$	`[9,24]`
10	$\left[-y,\ -x,\ \frac{3}{4}\right]$	`[10,19]`
11	$\left[-x+y,\ y,\ \frac{3}{4}\right]$	`[11,20]`
12	$\left[x,\ x-y,\ \frac{3}{4}\right]$	`[12,21]`

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

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

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

No.	position	mapping
1	$[x,\, y,\, z]$	`[1]`
2	$[-y,\, x-y,\, z]$	`[2]`
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	$\left[y,\, x,\, \frac{1}{2}-z\right]$	`[7]`
8	$\left[x-y,\, -y,\, \frac{1}{2}-z\right]$	`[8]`
9	$\left[-x,\, -x+y,\, \frac{1}{2}-z\right]$	`[9]`
10	$[-y,\, -x,\, -z]$	`[10]`
11	$[-x+y,\, y,\, -z]$	`[11]`
12	$[x,\, x-y,\, -z]$	`[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	$\left[-y,\, -x,\, z+\frac{1}{2}\right]$	`[19]`
20	$\left[-x+y,\, y,\, z+\frac{1}{2}\right]$	`[20]`
21	$\left[x,\, x-y,\, z+\frac{1}{2}\right]$	`[21]`
22	$[y,\, x,\, z]$	`[22]`
23	$[x-y,\, -y,\, z]$	`[23]`
24	$[-x,\, -x+y,\, z]$	`[24]`