MSG No. 193.259 $P6'_3/m'cm'$ [Type III, hexagonal]

Table 1: Wyckoff site: `2a`, site symmetry: `-6'2m'`

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

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

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

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

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

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

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

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

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

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

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

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

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

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	$\left[\frac{2}{3}, \frac{1}{3}, \frac{1}{2} - z\right]$	`[4,5,6]`
3	$\left[\frac{2}{3}, \frac{1}{3}, -z\right]$	`[7,8,9]`
4	$\left[\frac{1}{3}, \frac{2}{3}, z + \frac{1}{2}\right]$	`[10,11,12]`
5	$\left[\frac{2}{3}, \frac{1}{3}, z + \frac{1}{2}\right]$	`[13,14,15]`
6	$\left[\frac{1}{3}, \frac{2}{3}, -z\right]$	`[16,17,18]`
7	$\left[\frac{1}{3}, \frac{2}{3}, \frac{1}{2} - z\right]$	`[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	$[x, 2x, 0]$	`[1,17]`
2	$[-2x, -x, 0]$	`[2,18]`
3	$[x, -x, 0]$	`[3,16]`
4	$\left[-x, -2x, \frac{1}{2}\right]$	`[4,14]`
5	$\left[2x, x, \frac{1}{2}\right]$	`[5,15]`
6	$\left[-x, x, \frac{1}{2}\right]$	`[6,13]`
7	$[-x, -2x, 0]$	`[7,23]`

continued ...

Table 9

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

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

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

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

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

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	$\left[x-y,\ -y,\ \frac{1}{2}-z\right]$	`[4]`
5	$\left[y,\ x,\ \frac{1}{2}-z\right]$	`[5]`
6	$\left[-x,\ -x+y,\ \frac{1}{2}-z\right]$	`[6]`
7	$[-x,\ -y,\ -z]$	`[7]`
8	$[y,\ -x+y,\ -z]$	`[8]`
9	$[x-y,\ x,\ -z]$	`[9]`
10	$\left[-x+y,\ y,\ z+\frac{1}{2}\right]$	`[10]`
11	$\left[-y,\ -x,\ z+\frac{1}{2}\right]$	`[11]`
12	$\left[x,\ x-y,\ z+\frac{1}{2}\right]$	`[12]`
13	$\left[x-y,\ x,\ z+\frac{1}{2}\right]$	`[13]`
14	$\left[-x,\ -y,\ z+\frac{1}{2}\right]$	`[14]`
15	$\left[y,\ -x+y,\ z+\frac{1}{2}\right]$	`[15]`
16	$[x,\ x-y,\ -z]$	`[16]`
17	$[-x+y,\ y,\ -z]$	`[17]`
18	$[-y,\ -x,\ -z]$	`[18]`
19	$\left[-x+y,\ -x,\ \frac{1}{2}-z\right]$	`[19]`
20	$\left[x,\ y,\ \frac{1}{2}-z\right]$	`[20]`
21	$\left[-y,\ x-y,\ \frac{1}{2}-z\right]$	`[21]`
22	$[-x,\ -x+y,\ z]$	`[22]`
23	$[x-y,\ -y,\ z]$	`[23]`
24	$[y,\ x,\ z]$	`[24]`