MSG No. 193.256 $P6'_3/mc'm$ [Type III, hexagonal]

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

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

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

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

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

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

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	$\left[\frac{1}{3},\ \frac{2}{3},\ \frac{1}{2}\right]$	`[7,8,9,22,23,24]`
4	$\left[\frac{2}{3},\ \frac{1}{3},\ 0\right]$	`[10,11,12,19,20,21]`

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

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

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

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

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

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

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	$\left[\frac{1}{3}, \frac{2}{3}, \frac{1}{2} - z\right]$	`[7,8,9]`
4	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[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	$\left[\frac{2}{3}, \frac{1}{3}, -z\right]$	`[19,20,21]`
8	$\left[\frac{1}{3}, \frac{2}{3}, z + \frac{1}{2}\right]$	`[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	$\left[x, -x, \frac{1}{2}\right]$	`[7,24]`

continued ...

Table 9

No.	position	mapping
8	$\left[x,\, 2x,\, \frac{1}{2}\right]$	[8,22]
9	$\left[-2x,\, -x,\, \frac{1}{2}\right]$	[9,23]
10	$[-x,\, x,\, 0]$	[10,21]
11	$[-x,\, -2x,\, 0]$	[11,19]
12	$[2x,\, x,\, 0]$	[12,20]

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

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

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

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

Table 12: Wyckoff site: 241, 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	$\left[-x+y,\, -x,\, \frac{1}{2}-z\right]$	[7]
8	$\left[x,\, y,\, \frac{1}{2}-z\right]$	[8]
9	$\left[-y,\, x-y,\, \frac{1}{2}-z\right]$	[9]
10	$[-x,\, -x+y,\, z]$	[10]
11	$[x-y,\, -y,\, z]$	[11]
12	$[y,\, x,\, z]$	[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	$[-x,\, -y,\, -z]$	[19]
20	$[y,\, -x+y,\, -z]$	[20]
21	$[x-y,\, x,\, -z]$	[21]
22	$\left[-x+y,\, y,\, z+\frac{1}{2}\right]$	[22]
23	$\left[-y,\, -x,\, z+\frac{1}{2}\right]$	[23]
24	$\left[x,\, x-y,\, z+\frac{1}{2}\right]$	[24]