MSG No. 193.260 $P6_3/mc'm'$ [Type III, hexagonal]

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

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

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

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

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

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

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

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

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

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

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	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right]$	`[2,8,15,21]`
3	$\left[0, \frac{1}{2}, 0\right]$	`[3,9,18,24]`
4	$\left[\frac{1}{2}, 0, \frac{1}{2}\right]$	`[4,10,13,19]`
5	$\left[\frac{1}{2}, \frac{1}{2}, 0\right]$	`[5,11,16,22]`
6	$\left[0, \frac{1}{2}, \frac{1}{2}\right]$	`[6,12,14,20]`

Table 7: Wyckoff site: `6g`, site symmetry: `m2'm'`

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

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

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

continued ...

Table 9

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

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

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

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

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

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

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