MSG No. 193.255 $P6_3/m'cm$ [Type III, hexagonal]

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

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

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

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

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

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

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

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

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

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	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right]$	`[2,9,15,20]`
3	$\left[0, \frac{1}{2}, 0\right]$	`[3,12,18,21]`
4	$\left[\frac{1}{2}, 0, \frac{1}{2}\right]$	`[4,7,13,22]`
5	$\left[\frac{1}{2}, \frac{1}{2}, 0\right]$	`[5,10,16,23]`
6	$\left[0, \frac{1}{2}, \frac{1}{2}\right]$	`[6,8,14,24]`

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

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

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	$\left[\frac{1}{3}, \frac{2}{3}, z+\frac{1}{2}\right]$	`[7,8,9]`
4	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[10,11,12]`
5	$\left[\frac{2}{3}, \frac{1}{3}, \frac{1}{2}-z\right]$	`[13,14,15]`
6	$\left[\frac{1}{3}, \frac{2}{3}, -z\right]$	`[16,17,18]`
7	$\left[\frac{2}{3}, \frac{1}{3}, -z\right]$	`[19,21,23]`
8	$\left[\frac{1}{3}, \frac{2}{3}, \frac{1}{2}-z\right]$	`[20,22,24]`

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	$\left[x, 2x, \frac{1}{2}\right]$	`[7,22]`

continued ...

Table 9

No.	position	mapping
8	$\left[-2x,\ -x,\ \frac{1}{2}\right]$	[8,24]
9	$\left[x,\ -x,\ \frac{1}{2}\right]$	[9,20]
10	$[-x,\ x,\ 0]$	[10,23]
11	$[-x,\ -2x,\ 0]$	[11,19]
12	$[2x,\ x,\ 0]$	[12,21]

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

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

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

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

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