MSG No. 192.251 $P6/m'c'c'$ [Type III, hexagonal]

Table 1: Wyckoff site: `2a`, site symmetry: `622`

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: `6/m'..`

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

Table 3: Wyckoff site: `4c`, site symmetry: `3.2`

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

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

No.	position	mapping
1	$\left[\frac{1}{3},\ \frac{2}{3},\ 0\right]$	`[1,3,5,14,16,18]`
2	$\left[\frac{2}{3},\ \frac{1}{3},\ 0\right]$	`[2,4,6,13,15,17]`
3	$\left[\frac{2}{3},\ \frac{1}{3},\ \frac{1}{2}\right]$	`[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: `6..`

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

Table 6: Wyckoff site: `6f`, site symmetry: `222`

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

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

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

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

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

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

continued ...

Table 9

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

Table 10: Wyckoff site: 12j, site symmetry: .2.

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

Table 11: Wyckoff site: 12k, site symmetry: ..2

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

Table 12: Wyckoff site: `12l`, site symmetry: `m'..`

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

Table 13: Wyckoff site: `24m`, site symmetry: `1`

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