MSG No. 188.220 $P_c\bar{6}c2$ [Type IV, hexagonal]

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

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

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

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

Table 3: Wyckoff site: `2c`, site symmetry: `-6'm'2`

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

Table 4: Wyckoff site: `2d`, site symmetry: `-6m'2'`

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

Table 5: Wyckoff site: `2e`, site symmetry: `-6'm'2`

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

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

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

Table 7: Wyckoff site: `4g`, site symmetry: `3m'.`

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

Table 8: Wyckoff site: `4h`, site symmetry: `3m'.`

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

Table 9: Wyckoff site: `4i`, site symmetry: `3m'.`

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

Table 10: Wyckoff site: `6j`, site symmetry: `m'm'2`

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

Table 11: Wyckoff site: `6k`, site symmetry: `mm'2'`

No.	position	mapping
1	$\left[x,\ -x,\ \frac{1}{4}\right]$	`[1,8,18,23]`
2	$\left[x,\ 2x,\ \frac{1}{4}\right]$	`[2,9,16,24]`

continued ...

Table 11

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

Table 12: Wyckoff site: 121, site symmetry: m'..

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

Table 13: Wyckoff site: 12m, 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	$\left[x,\, x-y,\, \frac{3}{4}\right]$	[4,12]
5	$\left[-x+y,\, y,\, \frac{3}{4}\right]$	[5,10]
6	$\left[-y,\, -x,\, \frac{3}{4}\right]$	[6,11]
7	$\left[x,\, y,\, \frac{3}{4}\right]$	[13,20]
8	$\left[-y,\, x-y,\, \frac{3}{4}\right]$	[14,21]
9	$\left[-x+y,\, -x,\, \frac{3}{4}\right]$	[15,19]
10	$\left[x,\, x-y,\, \frac{1}{4}\right]$	[16,24]
11	$\left[-x+y,\, y,\, \frac{1}{4}\right]$	[17,22]
12	$\left[-y,\, -x,\, \frac{1}{4}\right]$	[18,23]

Table 14: Wyckoff site: 12n, site symmetry: .m'.

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

Table 15: Wyckoff site: 24o, site symmetry: 1

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