MSG No. 190.232 $P_c\bar{6}2c$ [Type IV, hexagonal]

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

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: `-62'm'`

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: `4c`, site symmetry: `-6'..`

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

Table 4: Wyckoff site: `4d`, 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	$\left[\frac{2}{3},\ \frac{1}{3},\ \frac{3}{4}\right]$	`[4,5,6,10,11,12]`
3	$\left[\frac{1}{3},\ \frac{2}{3},\ \frac{3}{4}\right]$	`[13,14,15,19,20,21]`
4	$\left[\frac{2}{3},\ \frac{1}{3},\ \frac{1}{4}\right]$	`[16,17,18,22,23,24]`

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

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

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

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

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

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

Table 9: Wyckoff site: `12i`, site symmetry: `..m'`

No.	position	mapping
1	$[x,\ 0,\ z]$	`[1,23]`
2	$[0,\ x,\ z]$	`[2,24]`
3	$[-x,\ -x,\ z]$	`[3,22]`
4	$[x,\ 0,\ -z]$	`[4,20]`
5	$[0,\ x,\ -z]$	`[5,21]`
6	$[-x,\ -x,\ -z]$	`[6,19]`
7	$\left[-x,\ -x,\ \frac{1}{2}-z\right]$	`[7,18]`

continued ...

Table 9

No.	position	mapping
8	$\left[x,\, 0,\, \frac{1}{2}-z\right]$	[8,16]
9	$\left[0,\, x,\, \frac{1}{2}-z\right]$	[9,17]
10	$\left[-x,\, -x,\, z+\frac{1}{2}\right]$	[10,15]
11	$\left[x,\, 0,\, z+\frac{1}{2}\right]$	[11,13]
12	$\left[0,\, x,\, z+\frac{1}{2}\right]$	[12,14]

Table 10: Wyckoff site: 12j, 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	$[x-y,\, -y,\, 0]$	[4,23]
5	$[y,\, x,\, 0]$	[5,24]
6	$[-x,\, -x+y,\, 0]$	[6,22]
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	$\left[-x,\, -x+y,\, \frac{1}{2}\right]$	[10,18]
11	$\left[x-y,\, -y,\, \frac{1}{2}\right]$	[11,16]
12	$\left[y,\, x,\, \frac{1}{2}\right]$	[12,17]

Table 11: Wyckoff site: 12k, 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	$\left[x-y,\, -y,\, \frac{3}{4}\right]$	[4,11]
5	$\left[y,\, x,\, \frac{3}{4}\right]$	[5,12]
6	$\left[-x,\, -x+y,\, \frac{3}{4}\right]$	[6,10]
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	$\left[x-y,\, -y,\, \frac{1}{4}\right]$	[16,23]
11	$\left[y,\, x,\, \frac{1}{4}\right]$	[17,24]
12	$\left[-x,\, -x+y,\, \frac{1}{4}\right]$	[18,22]

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

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