MSG No. 189.223 $P\bar{6}'2'm$ [Type III, hexagonal]

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

No.	position	mapping
1	[0, 0, 0]	`[1,2,3,4,5,6,7,8,9,10,11,12]`

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

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

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

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

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

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

Table 5: Wyckoff site: `2e`, site symmetry: `3.m`

No.	position	mapping
1	$[0,\ 0,\ z]$	`[1,2,3,4,5,6]`
2	$[0,\ 0,\ -z]$	`[7,8,9,10,11,12]`

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

No.	position	mapping
1	$[x,\ 0,\ 0]$	`[1,5,7,11]`
2	$[0,\ x,\ 0]$	`[2,6,8,12]`
3	$[-x,\ -x,\ 0]$	`[3,4,9,10]`

Table 7: Wyckoff site: `3g`, site symmetry: `m'2'm`

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

Table 8: Wyckoff site: `4h`, 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	$\left[\frac{2}{3},\ \frac{1}{3},\ -z\right]$	`[7,8,9]`
4	$\left[\frac{1}{3},\ \frac{2}{3},\ -z\right]$	`[10,11,12]`

Table 9: Wyckoff site: `6i`, site symmetry: `..m`

No.	position	mapping
1	$[x,\ 0,\ z]$	`[1,5]`
2	$[0,\ x,\ z]$	`[2,6]`
3	$[-x,\ -x,\ z]$	`[3,4]`
4	$[x,\ 0,\ -z]$	`[7,11]`
5	$[0,\ x,\ -z]$	`[8,12]`
6	$[-x,\ -x,\ -z]$	`[9,10]`

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

No.	position	mapping
1	$[x,\ y,\ 0]$	`[1,11]`
2	$[-y,\ x-y,\ 0]$	`[2,12]`
3	$[-x+y,\ -x,\ 0]$	`[3,10]`
4	$[-x,\ -x+y,\ 0]$	`[4,9]`
5	$[x-y,\ -y,\ 0]$	`[5,7]`
6	$[y,\ x,\ 0]$	`[6,8]`

Table 11: Wyckoff site: `6k`, site symmetry: `m'..`

No.	position	mapping
1	$\left[x,\ y,\ \frac{1}{2}\right]$	`[1,11]`

continued ...

Table 11

No.	position	mapping
2	$\left[-y,\, x-y,\, \frac{1}{2}\right]$	[2,12]
3	$\left[-x+y,\, -x,\, \frac{1}{2}\right]$	[3,10]
4	$\left[-x,\, -x+y,\, \frac{1}{2}\right]$	[4,9]
5	$\left[x-y,\, -y,\, \frac{1}{2}\right]$	[5,7]
6	$\left[y,\, x,\, \frac{1}{2}\right]$	[6,8]

Table 12: Wyckoff site: 12l, 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	$[x-y,\, -y,\, -z]$	[7]
8	$[y,\, x,\, -z]$	[8]
9	$[-x,\, -x+y,\, -z]$	[9]
10	$[-x+y,\, -x,\, -z]$	[10]
11	$[x,\, y,\, -z]$	[11]
12	$[-y,\, x-y,\, -z]$	[12]