MSG No. 177.150 $P6221'$ [Type II, hexagonal]

Table 1: Wyckoff site: `1a`, site symmetry: `6221'`

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

Table 2: Wyckoff site: `1b`, site symmetry: `6221'`

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

Table 3: Wyckoff site: `2c`, site symmetry: `3.21'`

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

Table 4: Wyckoff site: `2d`, site symmetry: `3.21'`

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

Table 5: Wyckoff site: `2e`, site symmetry: `6..1'`

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

Table 6: Wyckoff site: `3f`, site symmetry: `2221'`

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

Table 7: Wyckoff site: `3g`, site symmetry: `2221'`

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

Table 8: Wyckoff site: `4h`, site symmetry: `3..1'`

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

Table 9: Wyckoff site: `6i`, site symmetry: `2..1'`

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

Table 10: Wyckoff site: `6j`, site symmetry: `.2.1'`

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

Table 11: Wyckoff site: `6k`, site symmetry: `.2.1'`

No.	position	mapping
1	$\left[x, 0, \frac{1}{2}\right]$	`[1,7,13,19]`

continued ...

Table 11

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

Table 12: Wyckoff site: 6l, site symmetry: ..21'

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

Table 13: Wyckoff site: 6m, site symmetry: ..21'

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

Table 14: Wyckoff site: 12n, site symmetry: 11'

No.	position	mapping
1	$[x,\, y,\, z]$	[1,13]
2	$[x-y,\, x,\, z]$	[2,14]
3	$[-y,\, x-y,\, z]$	[3,15]
4	$[-x,\, -y,\, z]$	[4,16]
5	$[-x+y,\, -x,\, z]$	[5,17]
6	$[y,\, -x+y,\, z]$	[6,18]
7	$[x-y,\, -y,\, -z]$	[7,19]
8	$[y,\, x,\, -z]$	[8,20]
9	$[-x,\, -x+y,\, -z]$	[9,21]
10	$[x,\, x-y,\, -z]$	[10,22]

continued ...

Table 14

No.	position	mapping
11	$[-x+y,\, y,\, -z]$	`[11,23]`
12	$[-y,\, -x,\, -z]$	`[12,24]`