MSG No. 162.74 $P\bar{3}1m1'$ [Type II, trigonal]

Table 1: Wyckoff site: `1a`, site symmetry: `-3.m1'`

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: `-3.m1'`

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	$\left[\frac{1}{3}, \frac{2}{3}, 0\right]$	`[1,2,3,4,5,6,13,14,15,16,17,18]`
2	$\left[\frac{2}{3}, \frac{1}{3}, 0\right]$	`[7,8,9,10,11,12,19,20,21,22,23,24]`

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

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

Table 5: Wyckoff site: `2e`, site symmetry: `3.m1'`

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

Table 6: Wyckoff site: `3f`, site symmetry: `..2/m1'`

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

Table 7: Wyckoff site: `3g`, site symmetry: `..2/m1'`

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

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

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

Table 9: Wyckoff site: `6i`, site symmetry: `..21'`

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

Table 10: Wyckoff site: `6j`, site symmetry: `..21'`

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

Table 11: Wyckoff site: `6k`, site symmetry: `..m1'`

No.	position	mapping
1	$[x, 0, z]$	`[1,11,13,23]`

continued ...

Table 11

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

Table 12: Wyckoff site: 12l, site symmetry: 11'

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