MSG No. 215.70 $P\bar{4}3m$ [Type I, cubic]

Table 1: Wyckoff site: `1a`, site symmetry: `-43m`

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: `-43m`

No.	position	mapping
1	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right]$	`[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: `3c`, site symmetry: `-42.m`

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

Table 4: Wyckoff site: `3d`, site symmetry: `-42.m`

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

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

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

Table 6: Wyckoff site: `6f`, site symmetry: `2.mm`

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

Table 7: Wyckoff site: `6g`, site symmetry: `2.mm`

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

Table 8: Wyckoff site: `12h`, site symmetry: `2..`

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

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

No.	position	mapping
1	$[x,\ x,\ z]$	`[1,20]`
2	$[x,\ -x,\ -z]$	`[2,17]`
3	$[-x,\ x,\ -z]$	`[3,18]`

continued ...

Table 9

No.	position	mapping
4	$[-x, -x, z]$	[4,19]
5	$[z, x, x]$	[5,24]
6	$[x, z, x]$	[6,22]
7	$[-x, z, -x]$	[7,13]
8	$[-z, -x, x]$	[8,15]
9	$[-x, -z, x]$	[9,14]
10	$[z, -x, -x]$	[10,16]
11	$[x, -z, -x]$	[11,21]
12	$[-z, x, -x]$	[12,23]

Table 10: Wyckoff site: 24j, site symmetry: 1

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