MSG No. 207.40 $P432$ [Type I, cubic]

Table 1: Wyckoff site: `1a`, site symmetry: `432`

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: `432`

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: `42.2`

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

Table 4: Wyckoff site: `3d`, site symmetry: `42.2`

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

Table 5: Wyckoff site: `6e`, site symmetry: `4..`

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

Table 6: Wyckoff site: `6f`, site symmetry: `4..`

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

Table 7: Wyckoff site: `8g`, site symmetry: `.3.`

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

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

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

Table 9: Wyckoff site: `12i`, site symmetry: `..2`

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

Table 10: Wyckoff site: `12j`, site symmetry: `..2`

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

Table 11: Wyckoff site: `24k`, site symmetry: `1`

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

continued ...

Table 11

No.	position	mapping
10	$[-x, -y, z]$	[10]
11	$[y, x, -z]$	[11]
12	$[-y, -x, -z]$	[12]
13	$[-x, z, y]$	[13]
14	$[-x, -z, -y]$	[14]
15	$[z, -y, x]$	[15]
16	$[-z, -y, -x]$	[16]
17	$[z, x, y]$	[17]
18	$[y, z, x]$	[18]
19	$[-y, z, -x]$	[19]
20	$[-z, -x, y]$	[20]
21	$[-y, -z, x]$	[21]
22	$[z, -x, -y]$	[22]
23	$[y, -z, -x]$	[23]
24	$[-z, x, -y]$	[24]