MSG No. 59.412 P_bmmn [Type IV, orthorhombic]

Table 1: Wyckoff site: `4a`, site symmetry: `.2'/m.`

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

Table 2: Wyckoff site: `4b`, site symmetry: `.2'/m'.`

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

Table 3: Wyckoff site: `4c`, site symmetry: `.2'/m.`

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

Table 4: Wyckoff site: `4d`, site symmetry: `.2'/m'.`

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

Table 5: Wyckoff site: `4e`, site symmetry: `mm2`

No.	position	mapping
1	$\left[\frac{1}{4},\ \frac{1}{4},\ z\right]$	`[1,4,6,7]`
2	$\left[\frac{3}{4},\ \frac{3}{4},\ -z\right]$	`[2,3,5,8]`

continued ...

Table 5

No.	position	mapping
3	$\left[\frac{1}{4},\ \frac{3}{4},\ z\right]$	`[9,12,14,15]`
4	$\left[\frac{3}{4},\ \frac{1}{4},\ -z\right]$	`[10,11,13,16]`

Table 6: Wyckoff site: `4f`, site symmetry: `mm'2'`

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

Table 7: Wyckoff site: `8g`, site symmetry: `.2'.`

No.	position	mapping
1	$[0,\ y,\ 0]$	`[1,11]`
2	$\left[\frac{1}{2},\ -y,\ 0\right]$	`[2,12]`
3	$\left[0,\ y+\frac{1}{2},\ 0\right]$	`[3,9]`
4	$\left[\frac{1}{2},\ \frac{1}{2}-y,\ 0\right]$	`[4,10]`
5	$[0,\ -y,\ 0]$	`[5,15]`
6	$\left[\frac{1}{2},\ y,\ 0\right]$	`[6,16]`
7	$\left[0,\ \frac{1}{2}-y,\ 0\right]$	`[7,13]`
8	$\left[\frac{1}{2},\ y+\frac{1}{2},\ 0\right]$	`[8,14]`

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

No.	position	mapping
1	$\left[0,\ y,\ \frac{1}{2}\right]$	`[1,11]`
2	$\left[\frac{1}{2},\ -y,\ \frac{1}{2}\right]$	`[2,12]`
3	$\left[0,\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[3,9]`
4	$\left[\frac{1}{2},\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[4,10]`
5	$\left[0,\ -y,\ \frac{1}{2}\right]$	`[5,15]`
6	$\left[\frac{1}{2},\ y,\ \frac{1}{2}\right]$	`[6,16]`
7	$\left[0,\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[7,13]`
8	$\left[\frac{1}{2},\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[8,14]`

Table 9: Wyckoff site: `8i`, site symmetry: `.m.`

No.	position	mapping
1	$\left[x,\ \frac{1}{4},\ z\right]$	`[1,7]`
2	$\left[x+\frac{1}{2},\ \frac{3}{4},\ -z\right]$	`[2,8]`
3	$\left[-x,\ \frac{3}{4},\ -z\right]$	`[3,5]`
4	$\left[\frac{1}{2}-x,\ \frac{1}{4},\ z\right]$	`[4,6]`
5	$\left[x,\ \frac{3}{4},\ z\right]$	`[9,15]`
6	$\left[x+\frac{1}{2},\ \frac{1}{4},\ -z\right]$	`[10,16]`
7	$\left[-x,\ \frac{1}{4},\ -z\right]$	`[11,13]`
8	$\left[\frac{1}{2}-x,\ \frac{3}{4},\ z\right]$	`[12,14]`

Table 10: Wyckoff site: `8j`, site symmetry: `.m'.`

No.	position	mapping
1	$\left[x,\ \frac{1}{2},\ z\right]$	`[1,15]`
2	$\left[x+\frac{1}{2},\ \frac{1}{2},\ -z\right]$	`[2,16]`
3	$[-x,\ 0,\ -z]$	`[3,13]`
4	$\left[\frac{1}{2}-x,\ 0,\ z\right]$	`[4,14]`
5	$\left[-x,\ \frac{1}{2},\ -z\right]$	`[5,11]`
6	$\left[\frac{1}{2}-x,\ \frac{1}{2},\ z\right]$	`[6,12]`
7	$[x,\ 0,\ z]$	`[7,9]`
8	$\left[x+\frac{1}{2},\ 0,\ -z\right]$	`[8,10]`

Table 11: Wyckoff site: `8k`, site symmetry: `m..`

No.	position	mapping
1	$\left[\frac{1}{4},\ y,\ z\right]$	`[1,6]`
2	$\left[\frac{3}{4},\ -y,\ -z\right]$	`[2,5]`
3	$\left[\frac{3}{4},\ y+\frac{1}{2},\ -z\right]$	`[3,8]`
4	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ z\right]$	`[4,7]`
5	$\left[\frac{1}{4},\ y+\frac{1}{2},\ z\right]$	`[9,14]`
6	$\left[\frac{3}{4},\ \frac{1}{2}-y,\ -z\right]$	`[10,13]`
7	$\left[\frac{3}{4},\ y,\ -z\right]$	`[11,16]`
8	$\left[\frac{1}{4},\ -y,\ z\right]$	`[12,15]`

Table 12: Wyckoff site: `16l`, site symmetry: `1`

No.	position	mapping
1	$[x,\ y,\ z]$	`[1]`
2	$\left[x+\frac{1}{2},\ -y,\ -z\right]$	`[2]`
3	$\left[-x,\ y+\frac{1}{2},\ -z\right]$	`[3]`

continued ...

Table 12

No.	position	mapping
4	$\left[\frac{1}{2}-x,\ \frac{1}{2}-y,\ z\right]$	[4]
5	$[-x,\ -y,\ -z]$	[5]
6	$\left[\frac{1}{2}-x,\ y,\ z\right]$	[6]
7	$\left[x,\ \frac{1}{2}-y,\ z\right]$	[7]
8	$\left[x+\frac{1}{2},\ y+\frac{1}{2},\ -z\right]$	[8]
9	$\left[x,\ y+\frac{1}{2},\ z\right]$	[9]
10	$\left[x+\frac{1}{2},\ \frac{1}{2}-y,\ -z\right]$	[10]
11	$[-x,\ y,\ -z]$	[11]
12	$\left[\frac{1}{2}-x,\ -y,\ z\right]$	[12]
13	$\left[-x,\ \frac{1}{2}-y,\ -z\right]$	[13]
14	$\left[\frac{1}{2}-x,\ y+\frac{1}{2},\ z\right]$	[14]
15	$[x,\ -y,\ z]$	[15]
16	$\left[x+\frac{1}{2},\ y,\ -z\right]$	[16]