MSG No. 163.82 $P\bar{3}'1c'$ [Type III, trigonal]

Table 1: Wyckoff site: `2a`, site symmetry: `3.2`

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

Table 2: Wyckoff site: `2b`, site symmetry: `-3'..`

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

Table 3: Wyckoff site: `2c`, site symmetry: `3.2`

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

Table 4: Wyckoff site: `2d`, site symmetry: `3.2`

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

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

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

Table 6: Wyckoff site: `4f`, site symmetry: `3..`

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

Table 7: Wyckoff site: `6g`, site symmetry: `-1'`

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

Table 8: Wyckoff site: `6h`, site symmetry: `..2`

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

Table 9: Wyckoff site: `12i`, site symmetry: `1`

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

continued ...

Table 9

No.	position	mapping
12	$\left[y,\, x,\, z+\frac{1}{2}\right]$	[12]