

MSG No. 93.123 $P4'_22'2$ [Type III, tetragonal]

Table 1: Wyckoff site: 2a, site symmetry: 22'2'.

No.	position	mapping
1	[0, 0, 0]	[1,2,7,8]
2	[0, 0, $\frac{1}{2}$]	[3,4,5,6]

Table 2: Wyckoff site: 2b, site symmetry: 22'2'.

No.	position	mapping
1	[$\frac{1}{2}$, $\frac{1}{2}$, 0]	[1,2,7,8]
2	[$\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$]	[3,4,5,6]

Table 3: Wyckoff site: 2c, site symmetry: 22'2'.

No.	position	mapping
1	[0, $\frac{1}{2}$, 0]	[1,2,7,8]
2	[$\frac{1}{2}$, 0, $\frac{1}{2}$]	[3,4,5,6]

Table 4: Wyckoff site: 2d, site symmetry: 22'2'.

No.	position	mapping
1	[0, $\frac{1}{2}$, $\frac{1}{2}$]	[1,2,7,8]
2	[$\frac{1}{2}$, 0, 0]	[3,4,5,6]

Table 5: Wyckoff site: 2e, site symmetry: 2.22

No.	position	mapping
1	[0, 0, $\frac{1}{4}$]	[1,2,3,4]
2	[0, 0, $\frac{3}{4}$]	[5,6,7,8]

Table 6: Wyckoff site: 2f, site symmetry: 2.22

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

Table 7: Wyckoff site: 4g, site symmetry: 2..

No.	position	mapping
1	$[0, 0, z]$	[1,2]
2	$[0, 0, \frac{1}{2} - z]$	[3,4]
3	$[0, 0, z + \frac{1}{2}]$	[5,6]
4	$[0, 0, -z]$	[7,8]

Table 8: Wyckoff site: 4h, site symmetry: 2..

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

Table 9: Wyckoff site: 4i, site symmetry: 2..

No.	position	mapping
1	$[0, \frac{1}{2}, z]$	[1,2]
2	$[\frac{1}{2}, 0, \frac{1}{2} - z]$	[3,4]
3	$[\frac{1}{2}, 0, z + \frac{1}{2}]$	[5,6]
4	$[0, \frac{1}{2}, -z]$	[7,8]

Table 10: Wyckoff site: 4j, site symmetry: .2'.

No.	position	mapping
1	$[x, 0, 0]$	[1,7]
2	$[-x, 0, 0]$	[2,8]
3	$[0, x, \frac{1}{2}]$	[3,5]
4	$[0, -x, \frac{1}{2}]$	[4,6]

Table 11: Wyckoff site: 4k, site symmetry: .2'.

No.	position	mapping
1	$[x, \frac{1}{2}, \frac{1}{2}]$	[1,7]
2	$[-x, \frac{1}{2}, \frac{1}{2}]$	[2,8]
3	$[\frac{1}{2}, x, 0]$	[3,5]
4	$[\frac{1}{2}, -x, 0]$	[4,6]

Table 12: Wyckoff site: 41, site symmetry: .2'.

No.	position	mapping
1	$[x, 0, \frac{1}{2}]$	[1,7]
2	$[-x, 0, \frac{1}{2}]$	[2,8]
3	$[0, x, 0]$	[3,5]
4	$[0, -x, 0]$	[4,6]

Table 13: Wyckoff site: 4m, site symmetry: .2'.

No.	position	mapping
1	$[x, \frac{1}{2}, 0]$	[1,7]
2	$[-x, \frac{1}{2}, 0]$	[2,8]
3	$[\frac{1}{2}, x, \frac{1}{2}]$	[3,5]
4	$[\frac{1}{2}, -x, \frac{1}{2}]$	[4,6]

Table 14: Wyckoff site: 4n, site symmetry: . . 2

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

Table 15: Wyckoff site: 4o, site symmetry: . . 2

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

Table 16: Wyckoff site: 8p, site symmetry: 1

No.	position	mapping
1	$[x, y, z]$	[1]
2	$[-x, -y, z]$	[2]
3	$[y, x, \frac{1}{2} - z]$	[3]
4	$[-y, -x, \frac{1}{2} - z]$	[4]

continued ...

Table 16

No.	position	mapping
5	$[-y, x, z + \frac{1}{2}]$	[5]
6	$[y, -x, z + \frac{1}{2}]$	[6]
7	$[x, -y, -z]$	[7]
8	$[-x, y, -z]$	[8]