

MSG No. 124.355 $P4'/mcc'$ [Type III, tetragonal]

Table 1: Wyckoff site: 2a, site symmetry: $4'22'$

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

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

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

Table 3: Wyckoff site: 2c, site symmetry: $4'22'$

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

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

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

Table 5: Wyckoff site: 4e, site symmetry: $2/m..$

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

Table 6: Wyckoff site: 4f, site symmetry: 222.

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

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

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

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

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

Table 9: Wyckoff site: 8i, site symmetry: 2 . .

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

Table 10: Wyckoff site: $8j$, site symmetry: $.2'$

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

Table 11: Wyckoff site: $8k$, site symmetry: $.2$.

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

Table 12: Wyckoff site: $8l$, site symmetry: $.2$.

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

Table 13: Wyckoff site: $8m$, site symmetry: $m..$

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

continued ...

Table 13

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

Table 14: Wyckoff site: 16n, site symmetry: 1

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