

MSG No. 92.118 $P_I4_12_12$ [Type IV, tetragonal]

Table 1: Wyckoff site: 4a, site symmetry: 2.22

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

Table 2: Wyckoff site: 4b, site symmetry: 2.22

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

Table 3: Wyckoff site: 8c, site symmetry: 2'..

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

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

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

Table 5: Wyckoff site: 8e, site symmetry: .2'.

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

Table 6: Wyckoff site: 8f, site symmetry: .2'.

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

Table 7: Wyckoff site: 16g, site symmetry: 1

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