

MSG No. 137.510 $P4'_2/nm'c$ [Type III, tetragonal]

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

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

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

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

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

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

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

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

Table 5: Wyckoff site: 8e, site symmetry: -1

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

continued ...

Table 5

No.	position	mapping
7	$[\frac{1}{2}, 0, 0]$	[11,15]
8	$[0, \frac{1}{2}, 0]$	[12,16]

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

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

Table 7: Wyckoff site: 8g, site symmetry: .m'.

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

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

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

continued ...

Table 8

No.	position	mapping
10	$[y, \frac{1}{2} - x, z + \frac{1}{2}]$	[10]
11	$[x + \frac{1}{2}, -y, -z]$	[11]
12	$[-x, y + \frac{1}{2}, -z]$	[12]
13	$[y + \frac{1}{2}, -x, \frac{1}{2} - z]$	[13]
14	$[-y, x + \frac{1}{2}, \frac{1}{2} - z]$	[14]
15	$[\frac{1}{2} - x, y, z]$	[15]
16	$[x, \frac{1}{2} - y, z]$	[16]