

MSG No. 59.413 P_cmmn [Type IV, orthorhombic]

Table 1: Wyckoff site: 4a, site symmetry: $\text{mm}2$

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

Table 2: Wyckoff site: 4b, site symmetry: $\text{mm}2$

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

Table 3: Wyckoff site: 8c, site symmetry: -1

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

Table 4: Wyckoff site: 8d, site symmetry: $-1'$

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

Table 5: Wyckoff site: 8e, site symmetry: m..

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

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

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

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

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