

MSG No. 65.484 *Cmmm'* [ Type III, orthorhombic ]

Table 1: Wyckoff site: **2a**, site symmetry: **mmm'**

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

Table 2: Wyckoff site: **2b**, site symmetry: **mmm'**

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

Table 3: Wyckoff site: **2c**, site symmetry: **mmm'**

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

Table 4: Wyckoff site: **2d**, site symmetry: **mmm'**

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

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

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

Table 6: Wyckoff site: 4f, site symmetry: . . 2/m'

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

Table 7: Wyckoff site: 4g, site symmetry: 2'mm'

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

Table 8: Wyckoff site: 4h, site symmetry: 2'mm'

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

Table 9: Wyckoff site: 4i, site symmetry: m2'm'

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

Table 10: Wyckoff site: 4j, site symmetry: m2'm'

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

Table 11: Wyckoff site: 4k, site symmetry: mm2

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

Table 12: Wyckoff site: 4l, site symmetry: mm2

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

Table 13: Wyckoff site: 8m, site symmetry: . . 2

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

Table 14: Wyckoff site: 8n, site symmetry: m. .

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

Table 15: Wyckoff site: **8o**, site symmetry: **.m.**

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

Table 16: Wyckoff site: **8p**, site symmetry: **. .m'**

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

Table 17: Wyckoff site: **8q**, site symmetry: **. .m'**

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

Table 18: Wyckoff site: **16r**, site symmetry: **1**

No.	position	mapping
1	$[x, y, z]$	[1]
2	$[-x, -y, z]$	[2]
3	$[-x, y, z]$	[3]

*continued ...*

Table 18

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