

MSG No. 188.219  $P\bar{6}c'2'$  [ Type III, hexagonal ]

Table 1: Wyckoff site: 2a, site symmetry:  $3.2'$

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

Table 2: Wyckoff site: 2b, site symmetry:  $-6..$

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

Table 3: Wyckoff site: 2c, site symmetry:  $3.2'$

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

Table 4: Wyckoff site: 2d, site symmetry:  $-6..$

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

Table 5: Wyckoff site: 2e, site symmetry:  $3.2'$

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

Table 6: Wyckoff site: 2f, site symmetry:  $-6..$

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

Table 7: Wyckoff site: 4g, site symmetry: 3..

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

Table 8: Wyckoff site: 4h, site symmetry: 3..

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

Table 9: Wyckoff site: 4i, site symmetry: 3..

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

Table 10: Wyckoff site: 6j, site symmetry: . . 2'

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

Table 11: Wyckoff site: 6k, site symmetry: m..

No.	position	mapping
1	$[x, y, \frac{1}{4}]$	$[1, 5]$
2	$[-y, x - y, \frac{1}{4}]$	$[2, 6]$

*continued ...*

Table 11

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

Table 12: Wyckoff site: 121, site symmetry: 1

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