

MSG No. 163.83 $P\bar{3}1c'$ [Type III, trigonal]

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

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

Table 2: Wyckoff site: 2b, site symmetry: $-3..$

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

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

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

Table 4: Wyckoff site: 2d, site symmetry: $3.2'$

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

Table 5: Wyckoff site: 4e, site symmetry: $3..$

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

Table 6: Wyckoff site: **4f**, site symmetry: **3**.

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

Table 7: Wyckoff site: **6g**, site symmetry: **-1**

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

Table 8: Wyckoff site: **6h**, site symmetry: **..2'**

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

Table 9: Wyckoff site: **12i**, site symmetry: **1**

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

continued ...

Table 9

No.	position	mapping
12	$[y, x, z + \frac{1}{2}]$	[12]