

MSG No. 117.303  $P\bar{4}b'2'$  [ Type III, tetragonal ]

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

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

Table 2: Wyckoff site: 2b, site symmetry:  $-4..$

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

Table 3: Wyckoff site: 2c, site symmetry:  $2.2'2'$

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

Table 4: Wyckoff site: 2d, site symmetry:  $2.2'2'$

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

Table 5: Wyckoff site: 4e, site symmetry:  $2..$

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

Table 6: Wyckoff site: **4f**, site symmetry:  $2..$ 

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

Table 7: Wyckoff site: **4g**, site symmetry:  $..2'$ 

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

Table 8: Wyckoff site: **4h**, site symmetry:  $..2'$ 

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

Table 9: Wyckoff site: **8i**, site symmetry:  $1$ 

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