

# SG No. 111 $D_{2d}^1$ $P\bar{4}2m$ [ tetragonal ]

\* plus set:  $+ [0, 0, 0]$

Table 1: Wyckoff site: 1a, site symmetry:  $-42m$

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

Table 2: Wyckoff site: 1b, site symmetry:  $-42m$

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

Table 3: Wyckoff site: 1c, site symmetry:  $-42m$

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

Table 4: Wyckoff site: 1d, site symmetry:  $-42m$

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

Table 5: Wyckoff site: 2e, site symmetry:  $222.$

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

Table 6: Wyckoff site: 2f, site symmetry:  $222.$

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

Table 7: Wyckoff site: 2g, site symmetry: 2.mm

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

Table 8: Wyckoff site: 2h, site symmetry: 2.mm

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

Table 9: Wyckoff site: 4i, site symmetry: .2.

No.	position	mapping
1	$[x, 0, 0]$	$[1, 6]$
2	$[-x, 0, 0]$	$[2, 5]$
3	$[0, -x, 0]$	$[3, 7]$
4	$[0, x, 0]$	$[4, 8]$

Table 10: Wyckoff site: 4j, site symmetry: .2.

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

Table 11: Wyckoff site: 4k, site symmetry: .2.

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

Table 12: Wyckoff site:  $4\bar{1}$ , site symmetry:  $\bar{2}$ .

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

Table 13: Wyckoff site:  $4\bar{\mathbf{m}}$ , site symmetry:  $2\bar{2}$ .

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 14: Wyckoff site:  $4\bar{\mathbf{n}}$ , site symmetry:  $\bar{2}\bar{2}\bar{\mathbf{m}}$ .

No.	position	mapping
1	$[x, x, z]$	$[1, 8]$
2	$[-x, -x, z]$	$[2, 7]$
3	$[x, -x, -z]$	$[3, 6]$
4	$[-x, x, -z]$	$[4, 5]$

Table 15: Wyckoff site:  $8\bar{\mathbf{o}}$ , site symmetry:  $\bar{1}$ .

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