# SG No. 122 $D_{2d}^{12}$ $I\bar{4}2d$ [ tetragonal ]

* plus set: $+[0,\ 0,\ 0]$, $+\left[\frac{1}{2},\ \frac{1}{2},\ \frac{1}{2}\right]$

Table 1: Wyckoff site: `4a`, site symmetry: `-4..`

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

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

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

Table 3: Wyckoff site: `8c`, site symmetry: `2..`

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

Table 4: Wyckoff site: `8d`, site symmetry: `.2.`

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

Table 5: Wyckoff site: `16e`, 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 | $\left[\frac{1}{2}-x,\ y,\ \frac{3}{4}-z\right]$ | `[5]` |

*continued ...*

Table 5

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