# SG No. 70 $D_{2h}^{24}$ $Fddd$ [ orthorhombic ]

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

Table 1: Wyckoff site: `8a`, site symmetry: `222`

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

Table 2: Wyckoff site: `8b`, site symmetry: `222`

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

Table 3: Wyckoff site: `16c`, site symmetry: `-1`

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

Table 4: Wyckoff site: `16d`, site symmetry: `-1`

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

Table 5: Wyckoff site: `16e`, site symmetry: `2..`

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

Table 6: Wyckoff site: `16f`, site symmetry: `.2.`

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

Table 7: Wyckoff site: `16g`, site symmetry: `..2`

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

Table 8: Wyckoff site: `32h`, site symmetry: `1`

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