# SG No. 185 $C_{6v}^3$ $P6_3cm$ [ hexagonal ]

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

Table 1: Wyckoff site: `2a`, site symmetry: `3.m`

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

Table 2: Wyckoff site: `4b`, site symmetry: `3..`

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

Table 3: Wyckoff site: `6c`, site symmetry: `..m`

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

Table 4: Wyckoff site: `12d`, site symmetry: `1`

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

| | | |
|---|---|---|
| 12 | $[-x,\, -x+y,\, z]$ | [12] |