# PG No. 20 $D_{3d}$ $\bar{3}m$ (-3m1 setting) [ trigonal ]

Table 1: Wyckoff site: `1o`, site symmetry: `-3m.`

| No. | position | mapping |
|---|---|---|
| 1 | [0, 0, 0] | `[1,2,3,4,5,6,7,8,9,10,11,12]` |

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

| No. | position | mapping |
|---|---|---|
| 1 | [0, 0, $z$] | `[1,2,3,10,11,12]` |
| 2 | [0, 0, $-z$] | `[4,5,6,7,8,9]` |

Table 3: Wyckoff site: `6b`, site symmetry: `.2.`

| No. | position | mapping |
|---|---|---|
| 1 | [$x$, 0, 0] | `[1,5]` |
| 2 | [0, $x$, 0] | `[2,4]` |
| 3 | [$-x$, $-x$, 0] | `[3,6]` |
| 4 | [$-x$, 0, 0] | `[7,11]` |
| 5 | [0, $-x$, 0] | `[8,10]` |
| 6 | [$x$, $x$, 0] | `[9,12]` |

Table 4: Wyckoff site: `6c`, site symmetry: `.m.`

| No. | position | mapping |
|---|---|---|
| 1 | [$x$, $-x$, $z$] | `[1,10]` |
| 2 | [$x$, $2x$, $z$] | `[2,12]` |
| 3 | [$-2x$, $-x$, $z$] | `[3,11]` |
| 4 | [$-x$, $x$, $-z$] | `[4,7]` |
| 5 | [$2x$, $x$, $-z$] | `[5,9]` |
| 6 | [$-x$, $-2x$, $-z$] | `[6,8]` |

Table 5: 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]` |

*continued ...*

Table 5

| No. | position | mapping |
|---|---|---|
| 4 | $[y,\, x,\, -z]$ | `[4]` |
| 5 | $[x-y,\, -y,\, -z]$ | `[5]` |
| 6 | $[-x,\, -x+y,\, -z]$ | `[6]` |
| 7 | $[-x,\, -y,\, -z]$ | `[7]` |
| 8 | $[y,\, -x+y,\, -z]$ | `[8]` |
| 9 | $[x-y,\, x,\, -z]$ | `[9]` |
| 10 | $[-y,\, -x,\, z]$ | `[10]` |
| 11 | $[-x+y,\, y,\, z]$ | `[11]` |
| 12 | $[x,\, x-y,\, z]$ | `[12]` |