SG No. 156 C_{3v}^{1} $P3m1$ [trigonal]

* plus set: $+[0,\ 0,\ 0]$
* Wyckoff site: `1a`, site symmetry: `3m.`

Table 1: Wyckoff bond: `1a@1a`

No.	vector	center	mapping
1	$[0,\ 0,\ Z]$	$[0,\ 0,\ z]$	`[1,2,3,4,5,6]`

Table 2: Wyckoff bond: `3b@1a`

No.	vector	center	mapping
1	$[X,\ -X,\ Z]$	$[0,\ 0,\ z]$	`[1,4]`
2	$[X,\ 2X,\ Z]$	$[0,\ 0,\ z]$	`[2,6]`
3	$[-2X,\ -X,\ Z]$	$[0,\ 0,\ z]$	`[3,5]`

Table 3: Wyckoff bond: `3c@1a`

No.	vector	center	mapping
1	$[X,\ 0,\ 0]$	$[0,\ 0,\ z]$	`[1,-5]`
2	$[0,\ X,\ 0]$	$[0,\ 0,\ z]$	`[2,-4]`
3	$[-X,\ -X,\ 0]$	$[0,\ 0,\ z]$	`[3,-6]`

Table 4: Wyckoff bond: `6d@1a`

No.	vector	center	mapping
1	$[X,\ Y,\ Z]$	$[0,\ 0,\ z]$	`[1]`
2	$[-Y,\ X-Y,\ Z]$	$[0,\ 0,\ z]$	`[2]`
3	$[-X+Y,\ -X,\ Z]$	$[0,\ 0,\ z]$	`[3]`
4	$[-Y,\ -X,\ Z]$	$[0,\ 0,\ z]$	`[4]`
5	$[-X+Y,\ Y,\ Z]$	$[0,\ 0,\ z]$	`[5]`
6	$[X,\ X-Y,\ Z]$	$[0,\ 0,\ z]$	`[6]`

* Wyckoff site: `1b`, site symmetry: `3m.`

Table 5: Wyckoff bond: `1a@1b`

No.	vector	center	mapping
1	$[0,\ 0,\ Z]$	$\left[\frac{1}{3},\ \frac{2}{3},\ z\right]$	`[1,2,3,4,5,6]`

Table 6: Wyckoff bond: `3b@1b`

No.	vector	center	mapping
1	$[X, -X, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[1,4]`
2	$[X, 2X, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[2,6]`
3	$[-2X, -X, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[3,5]`

Table 7: Wyckoff bond: `3c@1b`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[1,-5]`
2	$[0, X, 0]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[2,-4]`
3	$[-X, -X, 0]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[3,-6]`

Table 8: Wyckoff bond: `6d@1b`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[1]`
2	$[-Y, X-Y, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[2]`
3	$[-X+Y, -X, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[3]`
4	$[-Y, -X, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[4]`
5	$[-X+Y, Y, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[5]`
6	$[X, X-Y, Z]$	$\left[\frac{1}{3}, \frac{2}{3}, z\right]$	`[6]`

* Wyckoff site: `1c`, site symmetry: `3m.`

Table 9: Wyckoff bond: `1a@1c`

No.	vector	center	mapping
1	$[0, 0, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[1,2,3,4,5,6]`

Table 10: Wyckoff bond: `3b@1c`

No.	vector	center	mapping
1	$[X, -X, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[1,4]`
2	$[X, 2X, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[2,6]`
3	$[-2X, -X, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[3,5]`

Table 11: Wyckoff bond: `3c@1c`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[1,-5]`
2	$[0, X, 0]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[2,-4]`
3	$[-X, -X, 0]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[3,-6]`

Table 12: Wyckoff bond: `6d@1c`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[1]`
2	$[-Y, X-Y, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[2]`
3	$[-X+Y, -X, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[3]`
4	$[-Y, -X, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[4]`
5	$[-X+Y, Y, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[5]`
6	$[X, X-Y, Z]$	$\left[\frac{2}{3}, \frac{1}{3}, z\right]$	`[6]`

* Wyckoff site: `3d`, site symmetry: `.m.`

Table 13: Wyckoff bond: `3a@3d`

No.	vector	center	mapping
1	$[X, -X, Z]$	$[x, -x, z]$	`[1,4]`
2	$[X, 2X, Z]$	$[x, 2x, z]$	`[2,6]`
3	$[-2X, -X, Z]$	$[-2x, -x, z]$	`[3,5]`

Table 14: Wyckoff bond: `3b@3d`

No.	vector	center	mapping
1	$[X, X, 0]$	$[x, -x, z]$	`[1,-4]`
2	$[-X, 0, 0]$	$[x, 2x, z]$	`[2,-6]`
3	$[0, -X, 0]$	$[-2x, -x, z]$	`[3,-5]`

Table 15: Wyckoff bond: `6c@3d`

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, -x, z]$	`[1]`
2	$[-Y, X-Y, Z]$	$[x, 2x, z]$	`[2]`
3	$[-X+Y, -X, Z]$	$[-2x, -x, z]$	`[3]`
4	$[-Y, -X, Z]$	$[x, -x, z]$	`[4]`

continued ...

Table 15

No.	vector	center	mapping
5	$[-X+Y,\ Y,\ Z]$	$[-2x,\ -x,\ z]$	[5]
6	$[X,\ X-Y,\ Z]$	$[x,\ 2x,\ z]$	[6]

* Wyckoff site: 6e, site symmetry: 1

Table 16: Wyckoff bond: 6a@6e

No.	vector	center	mapping
1	$[X,\ Y,\ Z]$	$[x,\ y,\ z]$	[1]
2	$[-Y,\ X-Y,\ Z]$	$[-y,\ x-y,\ z]$	[2]
3	$[-X+Y,\ -X,\ Z]$	$[-x+y,\ -x,\ z]$	[3]
4	$[-Y,\ -X,\ Z]$	$[-y,\ -x,\ z]$	[4]
5	$[-X+Y,\ Y,\ Z]$	$[-x+y,\ y,\ z]$	[5]
6	$[X,\ X-Y,\ Z]$	$[x,\ x-y,\ z]$	[6]