

$pb2b$

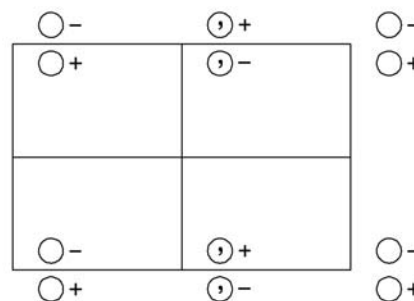
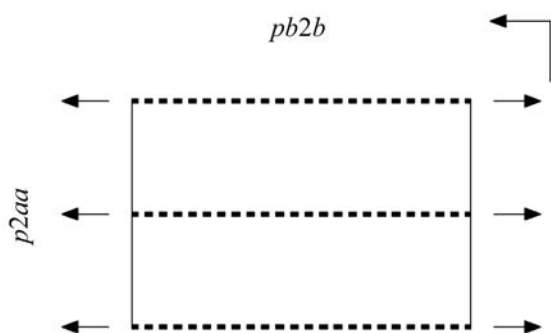
$m2m$

Orthorhombic/Rectangular

No. 30

$pb2b$

Patterson symmetry  $pmmm$



Origin on  $b2b$

Asymmetric unit  $0 \leq x \leq \frac{1}{2}; 0 \leq y \leq 1; 0 \leq z$

Symmetry operations

- |             |                           |  |  |
|-------------|---------------------------|--|--|
| (1) 1       | (2) 2 $0, y, 0$           | (3) $b$ $x, y, 0$                      | (4) $b$ $0, y, z$                      |
| (1 0, 0, 0) | (2 <sub>y</sub>  0, 0, 0) | (m <sub>z</sub>  0, $\frac{1}{2}$ , 0) | (m <sub>x</sub>  0, $\frac{1}{2}$ , 0) |

**Generators selected** (1);  $t(1,0,0)$ ;  $t(0,1,0)$ ; (2); (3)

**Positions**

Multiplicity,  
Wyckoff letter,  
Site symmetry

Coordinates

Reflection conditions

4 *c* 1 (1)  $x, y, z$  (2)  $\bar{x}, y, \bar{z}$  (3)  $x, y + \frac{1}{2}, \bar{z}$  (4)  $\bar{x}, y + \frac{1}{2}, z$

General:

$hk: k = 2n$

$0k: k = 2n$

Special: no extra conditions

2 *b* .2.  $\frac{1}{2}, y, 0$   $\frac{1}{2}, y + \frac{1}{2}, 0$

2 *a* .2.  $0, y, 0$   $0, y + \frac{1}{2}, 0$

**Symmetry of special projections**

Along [001]  $p1m1$

$\mathbf{a}' = \mathbf{a}$   $\mathbf{b}' = \frac{1}{2}\mathbf{b}$

Origin at  $0, 0, z$

Along [100]  $\not p1m1$

$\mathbf{a}' = \frac{1}{2}\mathbf{b}$

Origin at  $x, 0, 0$

Along [010]  $\not p2mm$

$\mathbf{a}' = \mathbf{a}$

Origin at  $0, y, 0$

**Maximal non-isotypic subgroups**

**I** [2]  $pb11$  (12) 1; 4

[2]  $p121$  ( $p211$ , 8) 1; 2

[2]  $p11b$  ( $p11a$ , 5) 1; 3

**IIa** none

**IIb** [2]  $pb2n$  ( $\mathbf{a}' = 2\mathbf{a}$ ) (34)

**Maximal isotypic subgroups of lowest index**

**IIc** [2]  $pb2b$  ( $\mathbf{a}' = 2\mathbf{a}$ ) (30); [3]  $pb2b$  ( $\mathbf{b}' = 3\mathbf{b}$ ) (30)

**Minimal non-isotypic supergroups**

**I** [2]  $pmaa$  (38); [2]  $pbaa$  (43)

**II** [2]  $cm2e$  (36); [2]  $pm2m$  ( $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ ) (27)