

$pm\bar{a}2$

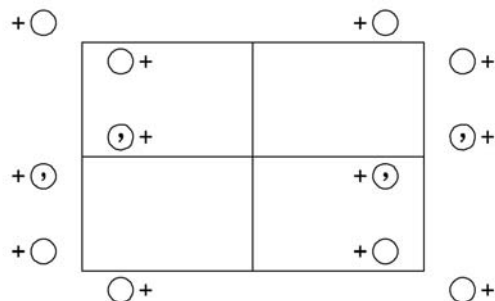
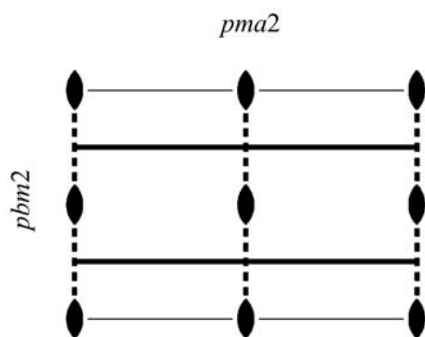
$mm2$

Orthorhombic/Rectangular

No. 24

$pm\bar{a}2$

Patterson symmetry  $pmmm$



Origin on  $1a2$

Asymmetric unit  $0 \leq x \leq \frac{1}{4}; 0 \leq y \leq 1$

Symmetry operations

- |               |                       |                           |                                 |
|---------------|-----------------------|---------------------------|---------------------------------|
| (1) 1         | (2) $2 \quad 0, 0, z$ | (3) $a \quad x, 0, z$     | (4) $m \quad \frac{1}{4}, y, z$ |
| $(1 0, 0, 0)$ | $(2_z 0, 0, 0)$       | $(m_y \frac{1}{2}, 0, 0)$ | $(m_x \frac{1}{2}, 0, 0)$       |

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

**Positions**

		Coordinates				Reflection conditions
Multiplicity, Wyckoff letter, Site symmetry						General:
4	<i>d</i> 1	(1) $x, y, z$	(2) $\bar{x}, \bar{y}, z$	(3) $x + \frac{1}{2}, \bar{y}, z$	(4) $\bar{x} + \frac{1}{2}, y, z$	$h0: h = 2n$
2	<i>c</i> $m..$	$\frac{1}{4}, y, z$	$\frac{3}{4}, \bar{y}, z$			Special: as above, plus no extra conditions
2	<i>b</i> $..2$	$0, \frac{1}{2}, z$	$\frac{1}{2}, \frac{1}{2}, z$			$hk: h = 2n$
2	<i>a</i> $..2$	$0, 0, z$	$\frac{1}{2}, 0, z$			$hk: h = 2n$

**Symmetry of special projections**

Along [001]  $p2mg$   
 $\mathbf{a}' = \mathbf{a}$   $\mathbf{b}' = \mathbf{b}$   
 Origin at  $0, 0, z$

Along [100]  $\neq 1m1$   
 $\mathbf{a}' = \mathbf{b}$   
 Origin at  $x, 0, 0$

Along [010]  $\neq 1m1$   
 $\mathbf{a}' = \frac{1}{2}\mathbf{a}$   
 Origin at  $0, y, 0$

**Maximal non-isotypic subgroups**

**I** [2]  $p1a1$  ( $pb11, 12$ ) 1; 3  
 [2]  $pm11$  (11) 1; 4  
 [2]  $p112$  (3) 1; 2

**IIa** none

**IIb** [2]  $pba2$  ( $\mathbf{b}' = 2\mathbf{b}$ ) (25)

**Maximal isotypic subgroups of lowest index**

**IIc** [2]  $pma2$  ( $\mathbf{b}' = 2\mathbf{b}$ ) (24); [3]  $pma2$  ( $\mathbf{a}' = 3\mathbf{a}$ ) (24)

**Minimal non-isotypic supergroups**

**I** [2]  $pmaa$  (38); [2]  $pmam$  (40); [2]  $pman$  (42); [2]  $pbma$  (45)  
**II** [2]  $cmm2$  (26); [2]  $pmm2$  ( $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ ) (23)