

$p\bar{4}$

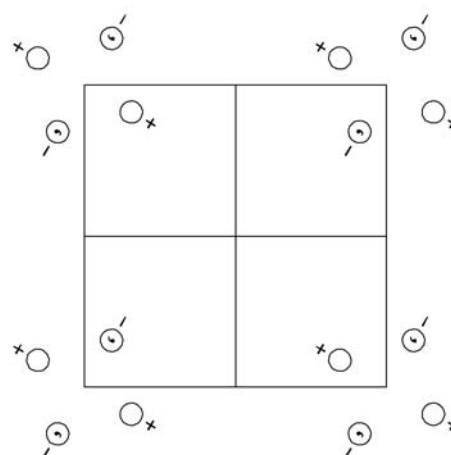
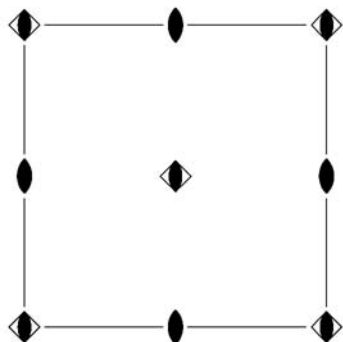
$\bar{4}$

Tetragonal/Square

No. 50

$p\bar{4}$

Patterson symmetry $p4/m$



Origin at $\bar{4}$

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

Symmetry operations

- | | | | |
|---------------|-----------------------------|--------------------------------|--------------------------------|
| (1) 1 | (2) 2 $0,0,z$ | (3) $\bar{4}^+$ $0,0,z; 0,0,0$ | (4) $\bar{4}^-$ $0,0,z; 0,0,0$ |
| (1 $0,0,0$) | (2 _z $0,0,0$) | ($\bar{4}_z^+$ $0,0,0$) | ($\bar{4}_z^-$ $0,0,0$) |

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

Positions

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

Symmetry of special projections

Along [001] $p4$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

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

Along [110] $\neq 1m1$
 $\mathbf{a}' = \frac{1}{2}(-\mathbf{a} + \mathbf{b})$
 Origin at $x, x, 0$

Maximal non-isotypic subgroups

I [2] $p211 (p112, 3)$ 1; 2

IIa none

IIb none

Maximal isotypic subgroups of lowest index

IIc [2] $c\bar{4} (\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}) (p\bar{4}, 50)$

Minimal non-isotypic supergroups

I [2] $p4/m (51)$; [2] $p4/n (52)$; [2] $p\bar{4}2m (57)$; [2] $p\bar{4}2_1m (58)$; [2] $p\bar{4}m2 (59)$; [2] $p\bar{4}b2 (60)$

II none