

$p222$

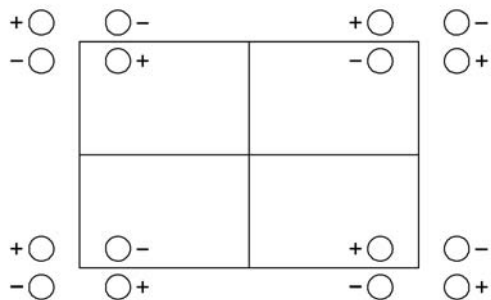
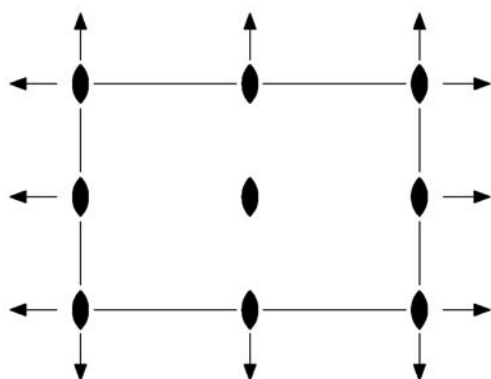
222

Orthorhombic/Rectangular

No. 19

$p222$

Patterson symmetry $pmmm$



Origin at 222

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) 2 $0,y,0$ (4) 2 $x,0,0$

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

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
					General:
4 <i>m</i> 1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) \bar{x}, y, \bar{z}	(4) x, \bar{y}, \bar{z}	no conditions Special: no extra conditions
2 <i>l</i> ..2	$\frac{1}{2}, \frac{1}{2}, z$	$\frac{1}{2}, \frac{1}{2}, \bar{z}$			
2 <i>k</i> ..2	$0, \frac{1}{2}, z$	$0, \frac{1}{2}, \bar{z}$			
2 <i>j</i> ..2	$\frac{1}{2}, 0, z$	$\frac{1}{2}, 0, \bar{z}$			
2 <i>i</i> ..2	$0, 0, z$	$0, 0, \bar{z}$			
2 <i>h</i> .2.	$\frac{1}{2}, y, 0$	$\frac{1}{2}, \bar{y}, 0$			
2 <i>g</i> .2.	$0, y, 0$	$0, \bar{y}, 0$			
2 <i>f</i> 2..	$x, \frac{1}{2}, 0$	$\bar{x}, \frac{1}{2}, 0$			
2 <i>e</i> 2..	$x, 0, 0$	$\bar{x}, 0, 0$			
1 <i>d</i> 222	$\frac{1}{2}, \frac{1}{2}, 0$				
1 <i>c</i> 222	$0, \frac{1}{2}, 0$				
1 <i>b</i> 222	$\frac{1}{2}, 0, 0$				
1 <i>a</i> 222	$0, 0, 0$				

Symmetry of special projections

Along [001] $p2mm$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

Along [100] $\neq 2mm$
 $\mathbf{a}' = \mathbf{b}$
 Origin at $x, 0, 0$

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

Maximal non-isotypic subgroups

I [2] $p121$ ($p211, 8$) 1; 3
 [2] $p211$ (8) 1; 4
 [2] $p112$ (3) 1; 2

IIa none

IIb [2] $c222$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$) (22); [2] $p22_1, 2$ ($\mathbf{b}' = 2\mathbf{b}$) ($p2_1, 22, 20$); [2] $p2_1, 22$ ($\mathbf{a}' = 2\mathbf{a}$) (20)

Maximal isotypic subgroups of lowest index

IIc [2] $p222$ ($\mathbf{a}' = 2\mathbf{a}$ or $\mathbf{b}' = 2\mathbf{b}$) (19)

Minimal non-isotypic supergroups

I [2] $pmmm$ (37); [2] $pmaa$ (38); [2] $pban$ (39); [2] $p422$ (53); [2] $p\bar{4}2m$ (57)

II [2] $c222$ (22)