

C222

D_2^6

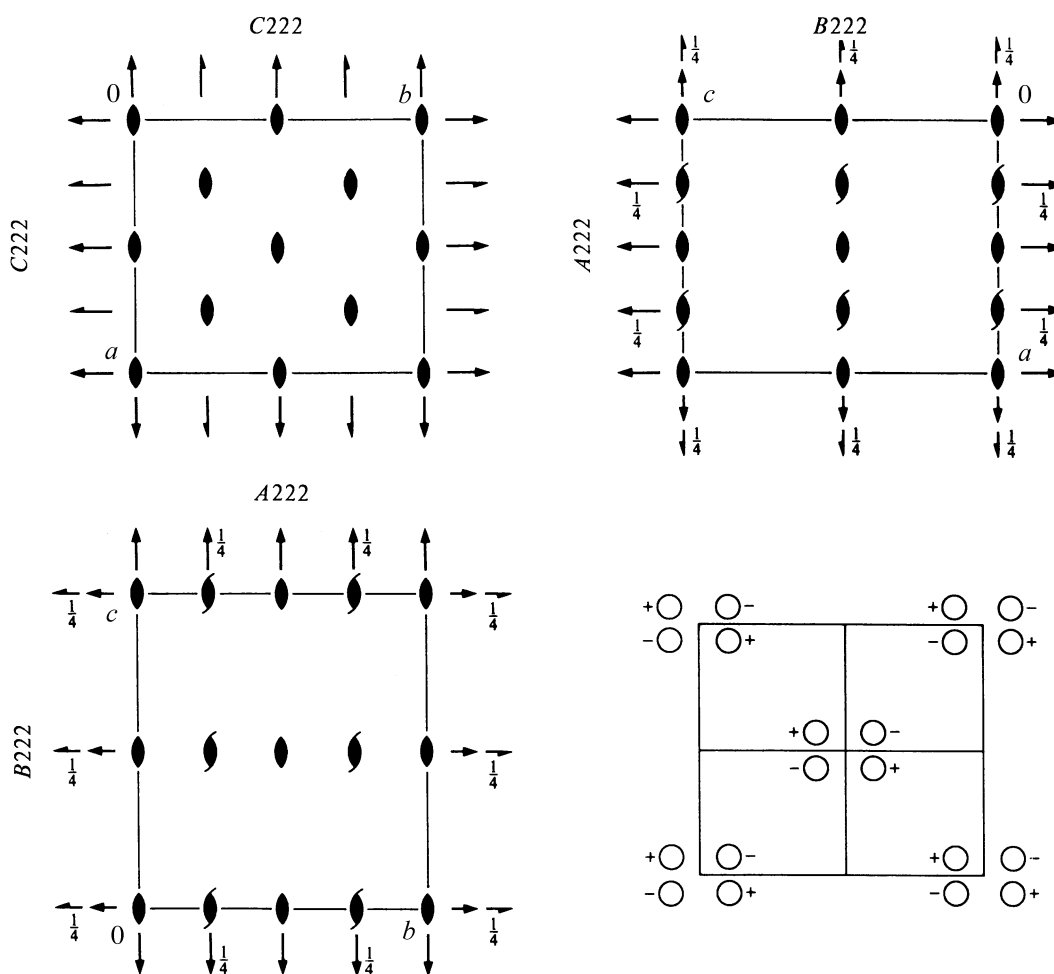
222

Orthorhombic

No. 21

C222

Patterson symmetry $Cmmm$



Origin at 222

Asymmetric unit $0 \leq x \leq \frac{1}{4}; 0 \leq y \leq \frac{1}{2}; 0 \leq z \leq 1$

Symmetry operations

For $(0,0,0)+$ set

- (1) 1 (2) 2 $0,0,z$ (3) 2 $0,y,0$ (4) 2 $x,0,0$

For $(\frac{1}{2},\frac{1}{2},0)+$ set

- (1) $t(\frac{1}{2},\frac{1}{2},0)$ (2) 2 $\frac{1}{4},\frac{1}{4},z$ (3) 2 $(0,\frac{1}{2},0) \frac{1}{4},y,0$ (4) 2 $(\frac{1}{2},0,0) x,\frac{1}{4},0$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2}, \frac{1}{2}, 0)$; (2); (3)

Positions

Multiplicity, Wyckoff letter, Site symmetry		Coordinates				Reflection conditions
		$(0,0,0)+ (\frac{1}{2}, \frac{1}{2}, 0)+$				General:
8	<i>l</i> 1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) \bar{x}, y, \bar{z}	(4) x, \bar{y}, \bar{z}	$hkl: h+k=2n$ $hk0: h+k=2n$ $0kl: k=2n$ $h00: h=2n$ $h0l: h=2n$ $0k0: k=2n$
						Special: as above, plus
4	<i>k</i> ..2	$\frac{1}{4}, \frac{1}{4}, z$	$\frac{3}{4}, \frac{1}{4}, \bar{z}$			$hk0: h=2n$
4	<i>j</i> ..2	$0, \frac{1}{2}, z$	$0, \frac{1}{2}, \bar{z}$			no extra conditions
4	<i>i</i> ..2	$0, 0, z$	$0, 0, \bar{z}$			no extra conditions
4	<i>h</i> .2.	$0, y, \frac{1}{2}$	$0, \bar{y}, \frac{1}{2}$			no extra conditions
4	<i>g</i> .2.	$0, y, 0$	$0, \bar{y}, 0$			no extra conditions
4	<i>f</i> 2..	$x, 0, \frac{1}{2}$	$\bar{x}, 0, \frac{1}{2}$			no extra conditions
4	<i>e</i> 2..	$x, 0, 0$	$\bar{x}, 0, 0$			no extra conditions
2	<i>d</i> 222	$0, 0, \frac{1}{2}$				no extra conditions
2	<i>c</i> 222	$\frac{1}{2}, 0, \frac{1}{2}$				no extra conditions
2	<i>b</i> 222	$0, \frac{1}{2}, 0$				no extra conditions
2	<i>a</i> 222	$0, 0, 0$				no extra conditions

Symmetry of special projections

Along [001] $c2mm$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

Along [100] $p2mm$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, 0, 0$

Along [010] $p2mm$
 $\mathbf{a}' = \mathbf{c}$ $\mathbf{b}' = \frac{1}{2}\mathbf{a}$
 Origin at $0, y, 0$