

$cm2m$

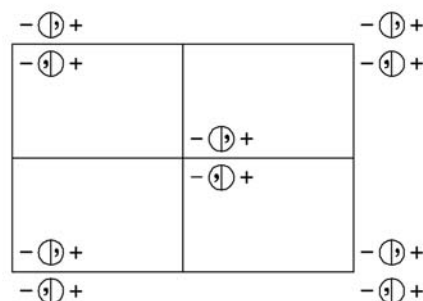
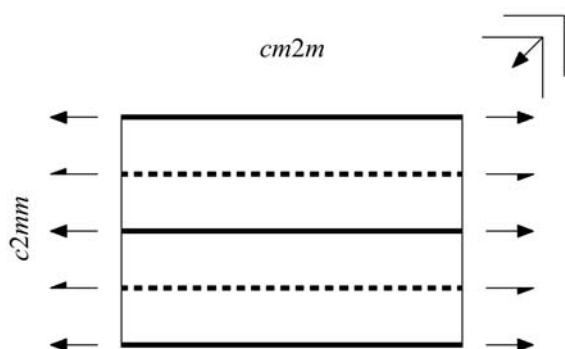
$m2m$

Orthorhombic/Rectangular

No. 35

$cm2m$

Patterson symmetry $cmmm$



Origin on $m2m$

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

Symmetry operations

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

- | | | | |
|--------------------|--|------------------------------------|------------------------------------|
| (1) 1
(1 0,0,0) | (2) 2 $0,y,0$
(2 _y 0,0,0) | (3) m $0,y,z$
(m_x 0,0,0) | (4) m $x,y,0$
(m_z 0,0,0) |
|--------------------|--|------------------------------------|------------------------------------|

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

- | | | | |
|---|--|--|---|
| (1) $t(\frac{1}{2}, \frac{1}{2}, 0)$
(1 $\frac{1}{2}, \frac{1}{2}, 0$) | (2) 2 $(0, \frac{1}{2}, 0)$ $\frac{1}{4}, y, 0$
(2 _y $\frac{1}{2}, \frac{1}{2}, 0$) | (3) b $\frac{1}{4}, y, z$
(m_x $\frac{1}{2}, \frac{1}{2}, 0$) | (4) $n(\frac{1}{2}, \frac{1}{2}, 0)$ $x, y, 0$
(m_z $\frac{1}{2}, \frac{1}{2}, 0$) |
|---|--|--|---|

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

Positions

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

Symmetry of special projections

Along [001] $c1m1$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at 0,0,z

Along [100] $\cancel{c}11m$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$
 Origin at $x, 0, 0$

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

Maximal non-isotypic subgroups

I	[2] $cm11$ (13)	(1; 3)+
	[2] $c121$ ($c211$, 10)	(1; 2)+
	[2] $c11m$ ($p11m$, 4)	(1; 4)+
IIa	[2] $pb2n$ (34)	1; 2; (3; 4) + ($\frac{1}{2}, \frac{1}{2}, 0$)
	[2] $pm2_1n$ (32)	1; 3; (2; 4) + ($\frac{1}{2}, \frac{1}{2}, 0$)
	[2] $pb2_1m$ (29)	1; 4; (2; 3) + ($\frac{1}{2}, \frac{1}{2}, 0$)
	[2] $pm2m$ (27)	1; 2; 3; 4
IIb	none	

Maximal isotypic subgroups of lowest index

IIc [3] $cm2m$ ($\mathbf{a}' = 3\mathbf{a}$) (35); [3] $cm2m$ ($\mathbf{b}' = 3\mathbf{b}$) (35)

Minimal non-isotypic supergroups

I	[2] $cmmm$ (47)
II	[2] $pm2m$ ($\mathbf{a}' = \frac{1}{2}\mathbf{a}, \mathbf{b}' = \frac{1}{2}\mathbf{b}$) (27)