

$cm2e$

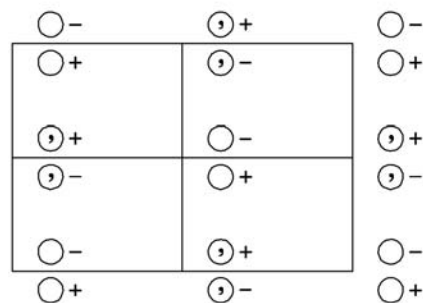
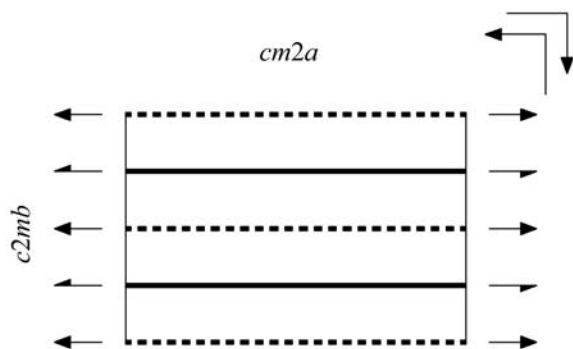
$m2m$

Orthorhombic/Rectangular

No. 36

$cm2e$

Patterson symmetry $cmmm$



Origin on $b2a$

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

Symmetry operations

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

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

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

Symmetry of special projections

Along [001] $p1m1$
 $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $\mathbf{b}' = \frac{1}{2}\mathbf{b}$
 Origin at 0, 0, z

Along [100] $\not{p}11m$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$
 Origin at x, 0, 0

Along [010] $\not{p}2mg$
 $\mathbf{a}' = \frac{1}{2}\mathbf{a}$
 Origin at 0, y, 0

Maximal non-isotypic subgroups

I	[2] $cm11$ (13)	(1; 3)+
	[2] $c121$ ($c211$, 10)	(1; 2)+
	[2] $c11a$ ($p11a$, 5)	(1; 4)+
IIa	[2] $pb2_1a$ (33)	1; 4; (2; 3) + $(\frac{1}{2}, \frac{1}{2}, 0)$
	[2] $pm2a$ (31)	1; 2; 3; 4
	[2] $pb2b$ (30)	1; 2; (3; 4) + $(\frac{1}{2}, \frac{1}{2}, 0)$
	[2] $pm2_1b$ (28)	1; 3; (2; 4) + $(\frac{1}{2}, \frac{1}{2}, 0)$
IIb	none	

Maximal isotypic subgroups of lowest index

IIc [3] $cm2e$ ($\mathbf{a}' = 3\mathbf{a}$) (36); [3] $cm2e$ ($\mathbf{b}' = 3\mathbf{b}$) (36)

Minimal non-isotypic supergroups

I	[2] $cmme$ (48)
II	[2] $pm2m$ ($\mathbf{a}' = \frac{1}{2}\mathbf{a}, \mathbf{b}' = \frac{1}{2}\mathbf{b}$) (27)