

$cm\bar{m}2$

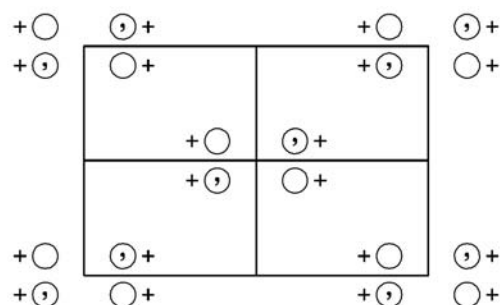
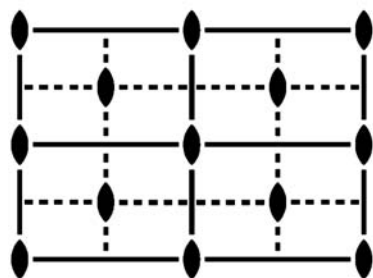
$mm2$

Orthorhombic/Rectangular

No. 26

$cm\bar{m}2$

Patterson symmetry $cm\bar{m}m$



Origin on $mm2$

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

Symmetry operations

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

- | | | | |
|-------------|---------------------------|---------------------------|---------------------------|
| (1) 1 | (2) $2 \quad 0, 0, z$ | (3) $m \quad x, 0, z$ | (4) $m \quad 0, y, z$ |
| (1 0, 0, 0) | (2 _z 0, 0, 0) | (m _y 0, 0, 0) | (m _x 0, 0, 0) |

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

- | | | | |
|--------------------------------------|---|---|---|
| (1) $t(\frac{1}{2}, \frac{1}{2}, 0)$ | (2) $2 \quad \frac{1}{4}, \frac{1}{4}, z$ | (3) $a \quad x, \frac{1}{4}, z$ | (4) $b \quad \frac{1}{4}, y, z$ |
| (1 \frac{1}{2}, \frac{1}{2}, 0) | (2 _z \frac{1}{2}, \frac{1}{2}, 0) | (m _y \frac{1}{2}, \frac{1}{2}, 0) | (m _x \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

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
	(0,0,0)+	$(\frac{1}{2}, \frac{1}{2}, 0)+$			General:
8 <i>f</i> 1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) x, \bar{y}, z	(4) \bar{x}, y, z	$hk: h+k=2n$ $0k: k=2n$ $h0: h=2n$
4 <i>e</i> <i>m</i> . .	$0, y, z$	$0, \bar{y}, z$			Special: as above, plus no extra conditions
4 <i>d</i> . <i>m</i> .	$x, 0, z$	$\bar{x}, 0, z$			no extra conditions
4 <i>c</i> . . 2	$\frac{1}{4}, \frac{1}{4}, z$	$\frac{1}{4}, \frac{3}{4}, z$			$hk: h=2n$
2 <i>b</i> <i>m m</i> 2	$0, \frac{1}{2}, z$				no extra conditions
2 <i>a</i> <i>m m</i> 2	$0, 0, z$				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] $\neq 1m1$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$
Origin at $x, 0, 0$

Along [010] $\neq 1m1$
 $\mathbf{a}' = \frac{1}{2}\mathbf{a}$
Origin at 0,y,0

Maximal non-isotypic subgroups

I	[2] $c1m1$ ($cm11$, 13)	(1; 3)+
	[2] $cm11$ (13)	(1; 4)+
	[2] $c112$ ($p112$, 3)	(1; 2)+
IIa	[2] $pba2$ (25)	1; 2; (3; 4) + $(\frac{1}{2}, \frac{1}{2}, 0)$
	[2] $pbm2$ ($pma2$, 24)	1; 3; (2; 4) + $(\frac{1}{2}, \frac{1}{2}, 0)$
	[2] $pma2$ (24)	1; 4; (2; 3) + $(\frac{1}{2}, \frac{1}{2}, 0)$
	[2] $pmm2$ (23)	1; 2; 3; 4
IIb	none	

Maximal isotypic subgroups of lowest index

IIc [3] $cmm2$ ($\mathbf{a}' = 3\mathbf{a}$ or $\mathbf{b}' = 3\mathbf{b}$) (26)

Minimal non-isotypic supergroups

I [2] $cmmm$ (47); [2] $cmme$ (48); [2] $p4mm$ (55); [2] $p4bm$ (56); [2] $p\bar{4}2m$ (57); [2] $p\bar{4}2_1m$ (58); [3] $p6mm$ (77)

II [2] $pmm2$ ($\mathbf{a}' = \frac{1}{2}\mathbf{a}, \mathbf{b}' = \frac{1}{2}\mathbf{b}$) (23)