

$Pmm2$

C_{2v}^1

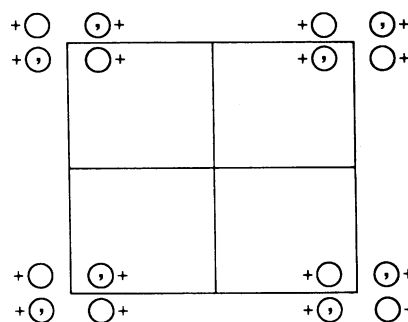
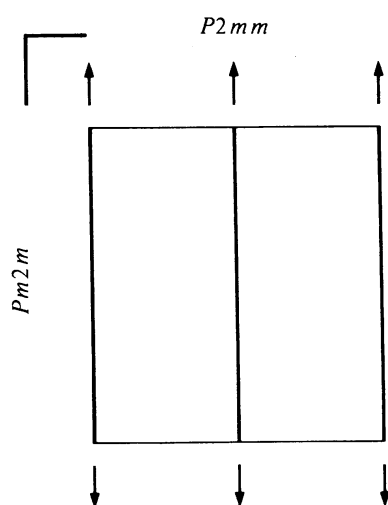
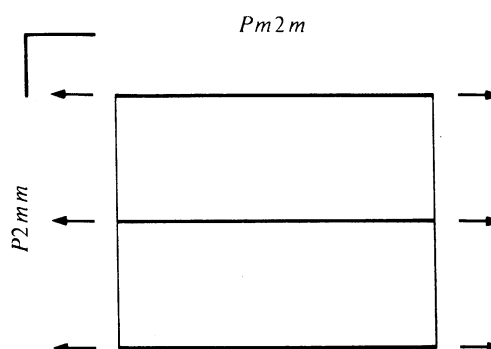
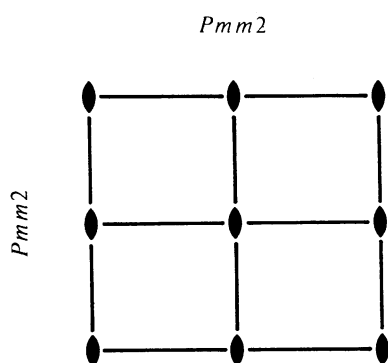
$mm2$

Orthorhombic

No. 25

$Pmm2$

Patterson symmetry $Pmmm$



Origin on $mm2$

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

Symmetry operations

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

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

Positions

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

Symmetry of special projections

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

Along [100] $p1m1$
 $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at x, 0, 0

Along [010] $p11m$
 $\mathbf{a}' = \mathbf{c}$ $\mathbf{b}' = \mathbf{a}$
 Origin at 0, y, 0

Maximal non-isomorphic subgroups

I [2] $P1m1$ (Pm , 6) 1; 3
 [2] $Pm11$ (Pm , 6) 1; 4
 [2] $P112$ ($P2$, 3) 1; 2

IIa none

IIb [2] $Pma2$ ($\mathbf{a}' = 2\mathbf{a}$) (28); [2] $Pbm2$ ($\mathbf{b}' = 2\mathbf{b}$) ($Pma2$, 28); [2] $Pcc2$ ($\mathbf{c}' = 2\mathbf{c}$) (27); [2] $Pmc2_1$ ($\mathbf{c}' = 2\mathbf{c}$) (26);
 [2] $Pcm2_1$ ($\mathbf{c}' = 2\mathbf{c}$) ($Pmc2_1$, 26); [2] $Aem2$ ($\mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$) (39); [2] $Amm2$ ($\mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$) (38);
 [2] $Bme2$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{c}' = 2\mathbf{c}$) ($Aem2$, 39); [2] $Bmm2$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{c}' = 2\mathbf{c}$) ($Amm2$, 38); [2] $Cmm2$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$) (35);
 [2] $Fmm2$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$) (42)

Maximal isomorphic subgroups of lowest index

IIc [2] $Pmm2$ ($\mathbf{a}' = 2\mathbf{a}$ or $\mathbf{b}' = 2\mathbf{b}$) (25); [2] $Pmm2$ ($\mathbf{c}' = 2\mathbf{c}$) (25)

Minimal non-isomorphic supergroups

I [2] $Pmmm$ (47); [2] $Pmma$ (51); [2] $Pmmn$ (59); [2] $P4mm$ (99); [2] $P4_2mc$ (105); [2] $P\bar{4}m2$ (115)
II [2] $Cmm2$ (35); [2] $Amm2$ (38); [2] $Bmm2$ ($Amm2$, 38); [2] $Imm2$ (44)