

$p\bar{6}m2$

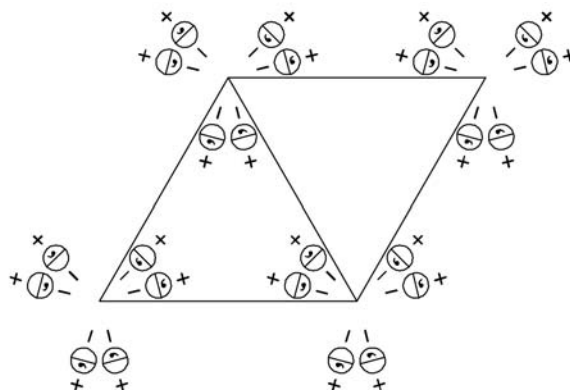
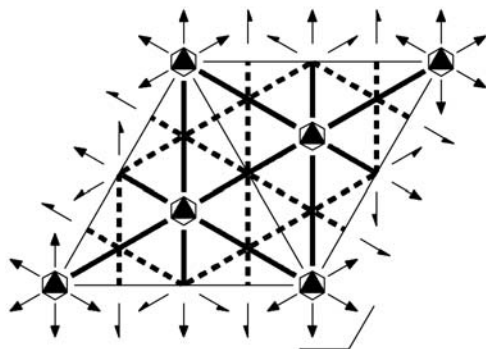
$\bar{6}m2$

Hexagonal/Hexagonal

No. 78

$p\bar{6}m2$

Patterson symmetry $p6/mmm$



Origin at $\bar{6}m2$

Asymmetric unit $0 \leq x \leq \frac{2}{3}; 0 \leq y \leq \frac{2}{3}; x \leq 2y; y \leq \min(1-x, 2x); 0 \leq z$
 Vertices $0, 0 \frac{2}{3}, \frac{1}{3} \frac{1}{3}, \frac{2}{3}$

Symmetry operations

- | | | |
|---|---|---|
| (1) 1
(1 0,0,0) | (2) $3^+ 0,0,z$
($3_z^+ 0,0,0$) | (3) $3^- 0,0,z$
($3_z^- 0,0,0$) |
| (4) $m x,y,0$
($m_z 0,0,0$) | (5) $\bar{6}^- 0,0,z; 0,0,0$
($\bar{6}_z^- 0,0,0$) | (6) $\bar{6}^+ 0,0,z; 0,0,0$
($\bar{6}_z^+ 0,0,0$) |
| (7) $m x,\bar{x},z$
($m_{xy} 0,0,0$) | (8) $m x,2x,z$
($m_x 0,0,0$) | (9) $m 2x,x,z$
($m_y 0,0,0$) |
| (10) $2 x,\bar{x},0$
($2_3 0,0,0$) | (11) $2 x,2x,0$
($2_2 0,0,0$) | (12) $2 2x,x,0$
($2_1 0,0,0$) |

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; (2); (4); (7)

Positions

Multiplicity, Wyckoff letter, Site symmetry		Coordinates			Reflection conditions		
					General:		
12	j 1	(1) x, y, z (4) x, y, \bar{z} (7) \bar{y}, \bar{x}, z (10) $\bar{y}, \bar{x}, \bar{z}$	(2) $\bar{y}, x - y, z$ (5) $\bar{y}, x - y, \bar{z}$ (8) $\bar{x} + y, y, z$ (11) $\bar{x} + y, y, \bar{z}$	(3) $\bar{x} + y, \bar{x}, z$ (6) $\bar{x} + y, \bar{x}, \bar{z}$ (9) $x, x - y, z$ (12) $x, x - y, \bar{z}$	no conditions		
					Special: no extra conditions		
6	i . m .	x, \bar{x}, z	$x, 2x, z$	$2\bar{x}, \bar{x}, z$	x, \bar{x}, \bar{z}	$x, 2x, \bar{z}$	$2\bar{x}, \bar{x}, \bar{z}$
6	h m . .	$x, y, 0$	$\bar{y}, x - y, 0$	$\bar{x} + y, \bar{x}, 0$	$\bar{y}, \bar{x}, 0$	$\bar{x} + y, y, 0$	$x, x - y, 0$
3	g $m m 2$	$x, \bar{x}, 0$	$x, 2x, 0$	$2\bar{x}, \bar{x}, 0$			
2	f 3 m .	$\frac{2}{3}, \frac{1}{3}, z$	$\frac{2}{3}, \frac{1}{3}, \bar{z}$				
2	e 3 m .	$\frac{1}{3}, \frac{2}{3}, z$	$\frac{1}{3}, \frac{2}{3}, \bar{z}$				
2	d 3 m .	$0, 0, z$	$0, 0, \bar{z}$				
1	c $\bar{6} m 2$	$\frac{2}{3}, \frac{1}{3}, 0$					
1	b $\bar{6} m 2$	$\frac{1}{3}, \frac{2}{3}, 0$					
1	a $\bar{6} m 2$	$0, 0, 0$					

Symmetry of special projections

Along [001] $p3m1$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

Along [100] $\neq 11m$
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$
 Origin at $x, 0, 0$

Along [210] $\neq 2mm$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$
 Origin at $x, \frac{1}{2}x, 0$

Maximal non-isotypic subgroups

I [2] $p\bar{6}11$ ($p\bar{6}, 74$) 1; 2; 3; 4; 5; 6
 [2] $p3m1$ (69) 1; 2; 3; 7; 8; 9
 [2] $p312$ (67) 1; 2; 3; 10; 11; 12
 [3] $pmm2$ ($cm2m, 35$) 1; 4; 7; 10
 [3] $pmm2$ ($cm2m, 35$) 1; 4; 8; 11
 [3] $pmm2$ ($cm2m, 35$) 1; 4; 9; 12

IIa none

IIb [3] $h\bar{6}m2$ ($\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = 3\mathbf{b}$) ($p\bar{6}2m, 79$)

Maximal isotypic subgroups of lowest index

IIc [4] $p\bar{6}m2$ ($\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$) (78)

Minimal non-isotypic supergroups

I [2] $p6/mmm$ (80)

II [2] $h\bar{6}m2$ ($p\bar{6}2m, 79$)