

$P\bar{6}m2$

D_{3h}^1

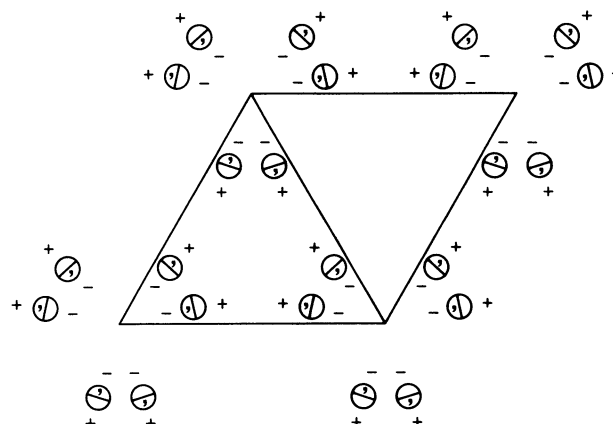
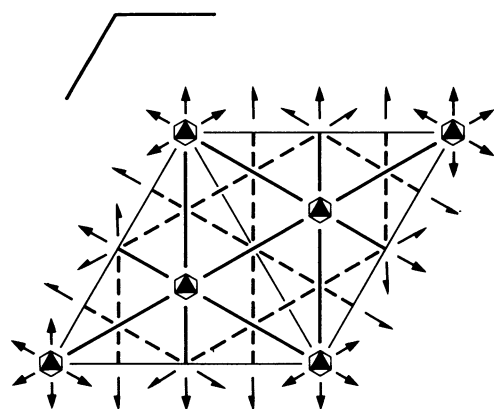
$\bar{6}m2$

Hexagonal

No. 187

$P\bar{6}m2$

Patterson symmetry $P6/mmm$



Origin at $\bar{6}m2$

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

Vertices $0, 0, 0$ $\frac{2}{3}, \frac{1}{3}, 0$ $\frac{1}{3}, \frac{2}{3}, 0$
 $0, 0, \frac{1}{2}$ $\frac{2}{3}, \frac{1}{3}, \frac{1}{2}$ $\frac{1}{3}, \frac{2}{3}, \frac{1}{2}$

Symmetry operations

- | | | |
|------------------------|----------------------------------|----------------------------------|
| (1) 1 | (2) $3^+ 0, 0, z$ | (3) $3^- 0, 0, z$ |
| (4) $m x, y, 0$ | (5) $\bar{6}^- 0, 0, z; 0, 0, 0$ | (6) $\bar{6}^+ 0, 0, z; 0, 0, 0$ |
| (7) $m x, \bar{x}, z$ | (8) $m x, 2x, z$ | (9) $m 2x, x, z$ |
| (10) $2 x, \bar{x}, 0$ | (11) $2 x, 2x, 0$ | (12) $2 2x, x, 0$ |

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

Positions

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

Reflection conditions

12	<i>o</i>	1	(1) x, y, z	(2) $\bar{y}, x - y, z$	(3) $\bar{x} + y, \bar{x}, z$
			(4) x, y, \bar{z}	(5) $\bar{y}, x - y, \bar{z}$	(6) $\bar{x} + y, \bar{x}, \bar{z}$
			(7) \bar{y}, \bar{x}, z	(8) $\bar{x} + y, y, z$	(9) $x, x - y, z$
			(10) $\bar{y}, \bar{x}, \bar{z}$	(11) $\bar{x} + y, y, \bar{z}$	(12) $x, x - y, \bar{z}$

General:

no conditions

Special: no extra conditions

6	<i>n</i>	. <i>m</i> .	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	<i>m</i>	<i>m</i> . .	$x, y, \frac{1}{2}$	$\bar{y}, x - y, \frac{1}{2}$	$\bar{x} + y, \bar{x}, \frac{1}{2}$	$\bar{y}, \bar{x}, \frac{1}{2}$	$\bar{x} + y, y, \frac{1}{2}$	$x, x - y, \frac{1}{2}$
6	<i>l</i>	<i>m</i> . .	$x, y, 0$	$\bar{y}, x - y, 0$	$\bar{x} + y, \bar{x}, 0$	$\bar{y}, \bar{x}, 0$	$\bar{x} + y, y, 0$	$x, x - y, 0$
3	<i>k</i>	<i>m m</i> 2	$x, \bar{x}, \frac{1}{2}$	$x, 2x, \frac{1}{2}$	$2\bar{x}, \bar{x}, \frac{1}{2}$			
3	<i>j</i>	<i>m m</i> 2	$x, \bar{x}, 0$	$x, 2x, 0$	$2\bar{x}, \bar{x}, 0$			
2	<i>i</i>	3 <i>m</i> .	$\frac{2}{3}, \frac{1}{3}, z$	$\frac{2}{3}, \frac{1}{3}, \bar{z}$				
2	<i>h</i>	3 <i>m</i> .	$\frac{1}{3}, \frac{2}{3}, z$	$\frac{1}{3}, \frac{2}{3}, \bar{z}$				
2	<i>g</i>	3 <i>m</i> .	$0, 0, z$	$0, 0, \bar{z}$				
1	<i>f</i>	$\bar{6}m2$	$\frac{2}{3}, \frac{1}{3}, \frac{1}{2}$					
1	<i>e</i>	$\bar{6}m2$	$\frac{2}{3}, \frac{1}{3}, 0$					
1	<i>d</i>	$\bar{6}m2$	$\frac{1}{3}, \frac{2}{3}, \frac{1}{2}$					
1	<i>c</i>	$\bar{6}m2$	$\frac{1}{3}, \frac{2}{3}, 0$					
1	<i>b</i>	$\bar{6}m2$	$0, 0, \frac{1}{2}$					
1	<i>a</i>	$\bar{6}m2$	$0, 0, 0$					

Symmetry of special projections

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

Along $[100]$ $p11m$
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, 0, 0$

Along $[210]$ $p2mm$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, \frac{1}{2}x, 0$