

P6

C₆¹

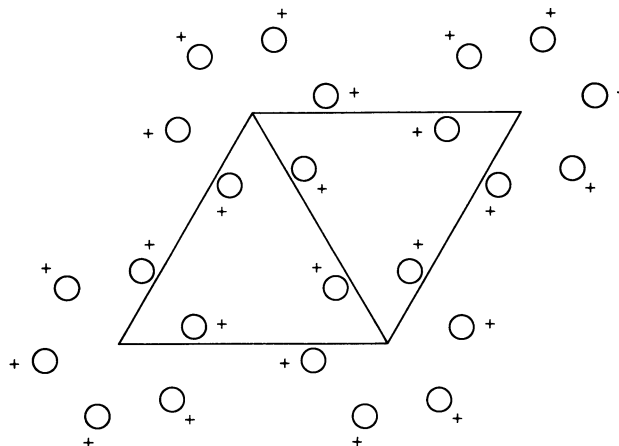
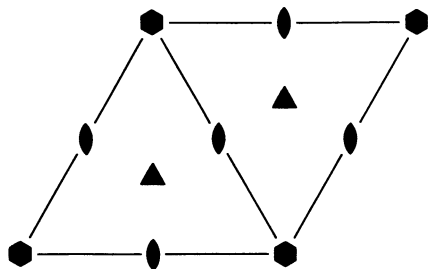
6

Hexagonal

No. 168

P6

Patterson symmetry **P6/m**



Origin on 6

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

Symmetry operations

- (1) 1
- (2) 3⁺ 0, 0, z
- (3) 3⁻ 0, 0, z
- (4) 2 0, 0, z
- (5) 6⁻ 0, 0, z
- (6) 6⁺ 0, 0, z

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

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates	Reflection conditions
6 <i>d</i> 1	(1) x, y, z (2) $\bar{y}, x - y, z$ (3) $\bar{x} + y, \bar{x}, z$ (4) \bar{x}, \bar{y}, z (5) $y, \bar{x} + y, z$ (6) $x - y, x, z$	General: no conditions Special: no extra conditions
3 <i>c</i> 2..	$\frac{1}{2}, 0, z$ $0, \frac{1}{2}, z$ $\frac{1}{2}, \frac{1}{2}, z$	
2 <i>b</i> 3..	$\frac{1}{3}, \frac{2}{3}, z$ $\frac{2}{3}, \frac{1}{3}, z$	
1 <i>a</i> 6..	$0, 0, z$	

Symmetry of special projections

Along [001] **p6**
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at 0, 0, z

Along [100] **p1m1**
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, 0, 0$

Along [210] **p1m1**
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, \frac{1}{2}x, 0$