

$p6$

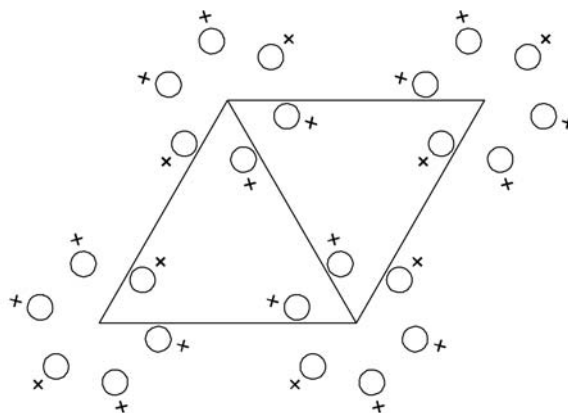
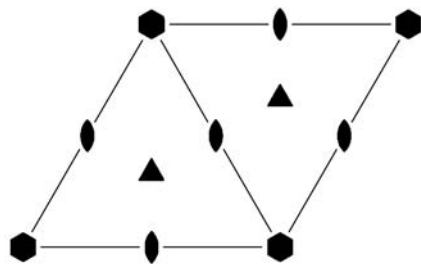
6

Hexagonal/Hexagonal

No. 73

$p6$

Patterson symmetry $p6/m$



Origin on 6

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

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

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) $2 0, 0, z$ $(2_z|0, 0, 0)$ (5) $6^- 0, 0, z$ $(6_z^-|0, 0, 0)$ (6) $6^+ 0, 0, z$ $(6_z^+|0, 0, 0)$

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

Positions

		Coordinates			Reflection conditions
Multiplicity, Wyckoff letter, Site symmetry					General:
6	<i>d</i> 1	(1) x, y, z (4) \bar{x}, \bar{y}, z	(2) $\bar{y}, x - y, z$ (5) $y, \bar{x} + y, z$	(3) $\bar{x} + y, \bar{x}, z$ (6) $x - y, x, z$	no conditions
3	<i>c</i> 2..	$\frac{1}{2}, 0, z$	$0, \frac{1}{2}, z$	$\frac{1}{2}, \frac{1}{2}, z$	Special: no extra conditions
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] $1m1$

$\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$

Origin at $x, 0, 0$

Along [210] $1m1$

$\mathbf{a}' = \frac{1}{2}\mathbf{b}$

Origin at $x, \frac{1}{2}x, 0$

Maximal non-isotypic subgroups

I [2] $p3$ (65) 1; 2; 3

[3] $p211$ ($p112, 3$) 1; 4

IIa none

IIb none

Maximal isotypic subgroups of lowest index

IIc [3] $h6$ ($\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = 3\mathbf{b}$) ($p6, 73$)

Minimal non-isotypic supergroups

I [2] $p6/m$ (75); [2] $p622$ (76); [2] $p6mm$ (77)

II none