

$p6$

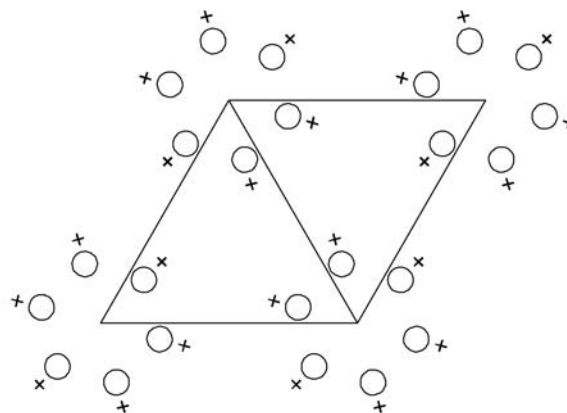
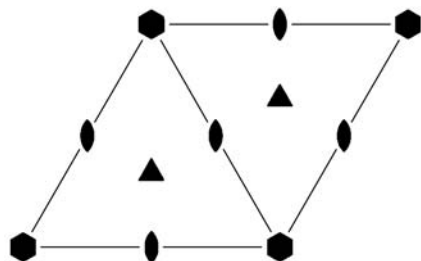
6

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           | (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);  $t(1,0,0)$ ;  $t(0,1,0)$ ; (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]  $\neq 1m1$

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

Origin at  $x, 0, 0$

Along [210]  $\neq 1m1$

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

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