

$p\bar{3}$

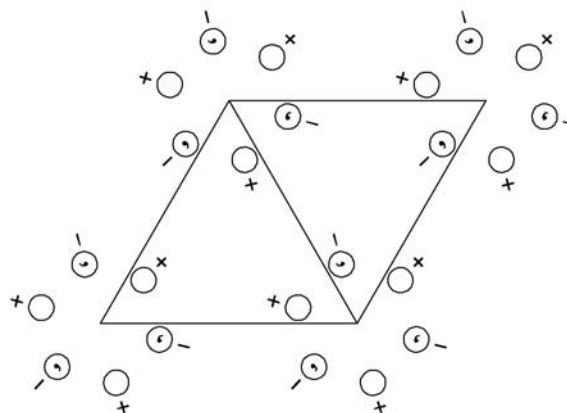
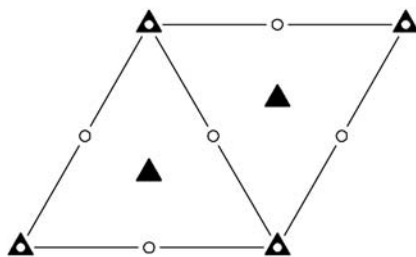
$\bar{3}$

Trigonal/Hexagonal

No. 66

$p\bar{3}$

Patterson symmetry  $p\bar{3}$



**Origin** at centre ( $\bar{3}$ )

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

**Symmetry operations**

- |                       |                                  |                                  |
|-----------------------|----------------------------------|----------------------------------|
| (1) 1                 | (2) $3^+ 0, 0, z$                | (3) $3^- 0, 0, z$                |
| (4) $\bar{1} 0, 0, 0$ | (5) $\bar{3}^+ 0, 0, z; 0, 0, 0$ | (6) $\bar{3}^- 0, 0, z; 0, 0, 0$ |

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

**Positions**

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

**Symmetry of special projections**

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

Along [100]  $\neq 211$   
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$   
 Origin at  $x, 0, 0$

Along [210]  $\neq 211$   
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$   
 Origin at  $x, \frac{1}{2}x, 0$

**Maximal non-isotypic subgroups**

**I** [2]  $p\bar{3}$  (65) 1; 2; 3  
 [3]  $p\bar{1}$  (2) 1; 4

**IIa** none

**IIb** none

**Maximal isotypic subgroups of lowest index**

**IIc** [3]  $h\bar{3}$  ( $\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = 3\mathbf{b}$ ) ( $p\bar{3}, 66$ )

**Minimal non-isotypic supergroups**

**I** [2]  $p\bar{3}1m$  (71); [2]  $p\bar{3}m1$  (72); [2]  $p6/m$  (75)

**II** none