

Trigonal

$\bar{3}$

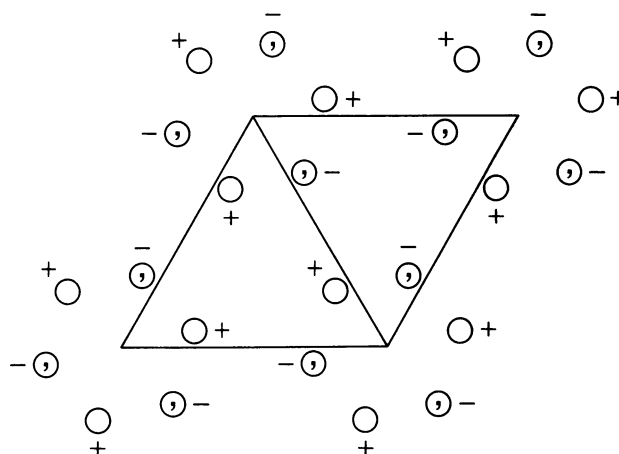
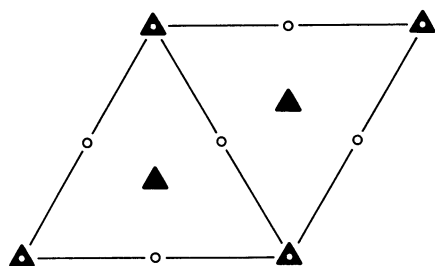
C_{3i}^1

$P\bar{3}$

Patterson symmetry $P\bar{3}$

$P\bar{3}$

No. 147



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

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

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

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

Positions

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

Reflection conditions

6 *g* 1 (1) x, y, z (2) $\bar{y}, x - y, z$ (3) $\bar{x} + y, \bar{x}, z$
 (4) $\bar{x}, \bar{y}, \bar{z}$ (5) $y, \bar{x} + y, \bar{z}$ (6) $x - y, x, \bar{z}$

General:

no conditions

Special: no extra conditions

3 *f* $\bar{1}$ $\frac{1}{2}, 0, \frac{1}{2}$ $0, \frac{1}{2}, \frac{1}{2}$ $\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$

3 *e* $\bar{1}$ $\frac{1}{2}, 0, 0$ $0, \frac{1}{2}, 0$ $\frac{1}{2}, \frac{1}{2}, 0$

2 *d* $3..$ $\frac{1}{3}, \frac{2}{3}, z$ $\frac{2}{3}, \frac{1}{3}, \bar{z}$

2 *c* $3..$ $0, 0, z$ $0, 0, \bar{z}$

1 *b* $\bar{3}..$ $0, 0, \frac{1}{2}$

1 *a* $\bar{3}..$ $0, 0, 0$

Symmetry of special projections

Along [001] *p*6
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

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

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