

$P\bar{6}2m$

D_{3h}^3

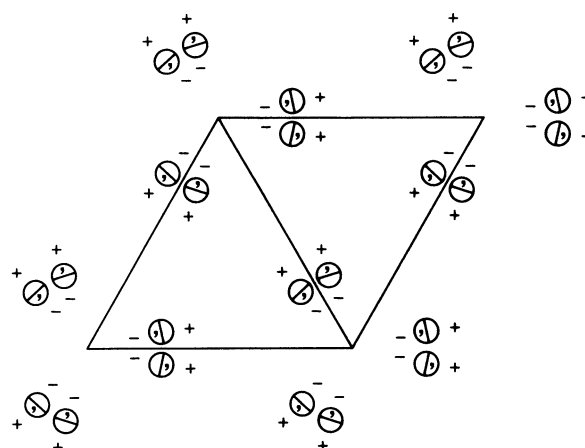
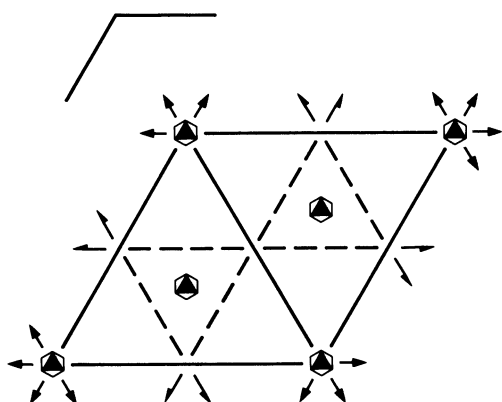
$\bar{6}2m$

Hexagonal

No. 189

$P\bar{6}2m$

Patterson symmetry $P6/mmm$



Origin at $\bar{6}2m$

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

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

Symmetry operations

- | | | |
|--------------------|------------------------------------|------------------------------------|
| (1) 1 | (2) 3^+ $0, 0, z$ | (3) 3^- $0, 0, z$ |
| (4) m $x, y, 0$ | (5) $\bar{6}^-$ $0, 0, z; 0, 0, 0$ | (6) $\bar{6}^+$ $0, 0, z; 0, 0, 0$ |
| (7) 2 $x, x, 0$ | (8) 2 $x, 0, 0$ | (9) 2 $0, y, 0$ |
| (10) m x, x, z | (11) m $x, 0, z$ | (12) m $0, y, z$ |

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (4); (7)

Positions

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

Reflection conditions

| | | | | | |
|----|----------|---|---------------------|-------------------------------|-------------------------------------|
| 12 | <i>l</i> | 1 | (1) x, y, z | (2) $\bar{y}, x - y, z$ | (3) $\bar{x} + y, \bar{x}, z$ |
| | | | (4) x, y, \bar{z} | (5) $\bar{y}, x - y, \bar{z}$ | (6) $\bar{x} + y, \bar{x}, \bar{z}$ |
| | | | (7) y, x, \bar{z} | (8) $x - y, \bar{y}, \bar{z}$ | (9) $\bar{x}, \bar{x} + y, \bar{z}$ |
| | | | (10) y, x, z | (11) $x - y, \bar{y}, z$ | (12) $\bar{x}, \bar{x} + y, z$ |

General:

no conditions

Special: no extra conditions

| | | | | | | | | |
|---|----------|-------------|---|---|-------------------------------------|-------------------------------|-------------------------------|-------------------------------------|
| 6 | <i>k</i> | $m..$ | $x, y, \frac{1}{2}$ | $\bar{y}, x - y, \frac{1}{2}$ | $\bar{x} + y, \bar{x}, \frac{1}{2}$ | $y, x, \frac{1}{2}$ | $x - y, \bar{y}, \frac{1}{2}$ | $\bar{x}, \bar{x} + y, \frac{1}{2}$ |
| 6 | <i>j</i> | $m..$ | $x, y, 0$ | $\bar{y}, x - y, 0$ | $\bar{x} + y, \bar{x}, 0$ | $y, x, 0$ | $x - y, \bar{y}, 0$ | $\bar{x}, \bar{x} + y, 0$ |
| 6 | <i>i</i> | $..m$ | $x, 0, z$ | $0, x, z$ | \bar{x}, \bar{x}, z | $x, 0, \bar{z}$ | $0, x, \bar{z}$ | $\bar{x}, \bar{x}, \bar{z}$ |
| 4 | <i>h</i> | $3..$ | $\frac{1}{3}, \frac{2}{3}, z$ | $\frac{1}{3}, \frac{2}{3}, \bar{z}$ | $\frac{2}{3}, \frac{1}{3}, \bar{z}$ | $\frac{2}{3}, \frac{1}{3}, z$ | | |
| 3 | <i>g</i> | $m2m$ | $x, 0, \frac{1}{2}$ | $0, x, \frac{1}{2}$ | $\bar{x}, \bar{x}, \frac{1}{2}$ | | | |
| 3 | <i>f</i> | $m2m$ | $x, 0, 0$ | $0, x, 0$ | $\bar{x}, \bar{x}, 0$ | | | |
| 2 | <i>e</i> | $3.m$ | $0, 0, z$ | $0, 0, \bar{z}$ | | | | |
| 2 | <i>d</i> | $\bar{6}..$ | $\frac{1}{3}, \frac{2}{3}, \frac{1}{2}$ | $\frac{2}{3}, \frac{1}{3}, \frac{1}{2}$ | | | | |
| 2 | <i>c</i> | $\bar{6}..$ | $\frac{1}{3}, \frac{2}{3}, 0$ | $\frac{2}{3}, \frac{1}{3}, 0$ | | | | |
| 1 | <i>b</i> | $\bar{6}2m$ | $0, 0, \frac{1}{2}$ | | | | | |
| 1 | <i>a</i> | $\bar{6}2m$ | $0, 0, 0$ | | | | | |

Symmetry of special projectionsAlong [001] $p31m$ $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$ Origin at $0, 0, z$ Along [100] $p2mm$ $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$ $\mathbf{b}' = \mathbf{c}$ Origin at $x, 0, 0$ Along [210] $p11m$ $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$ Origin at $x, \frac{1}{2}x, 0$