

$P\bar{6}c2$

D_{3h}^2

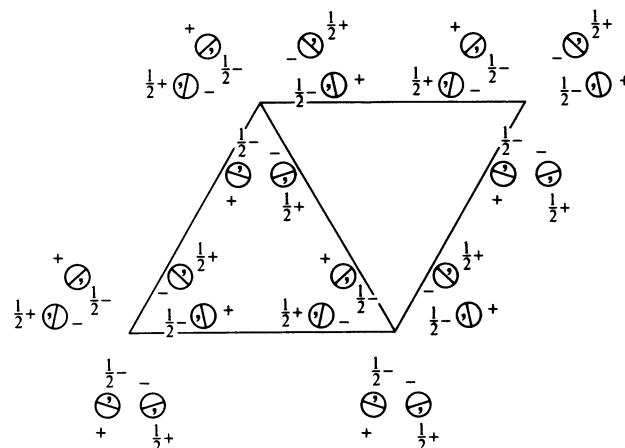
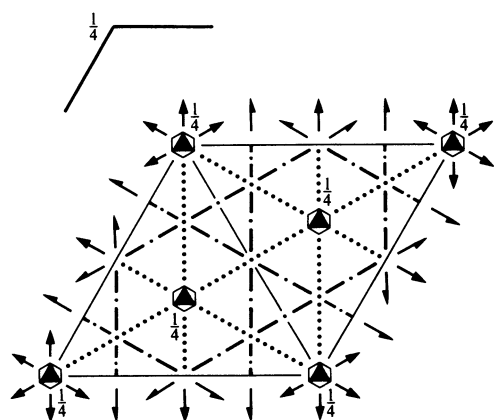
$\bar{6}m2$

Hexagonal

No. 188

$P\bar{6}c2$

Patterson symmetry $P6/mmm$



Origin at $3c2$

Asymmetric unit $0 \leq x \leq \frac{2}{3}$; $0 \leq y \leq \frac{2}{3}$; $0 \leq z \leq \frac{1}{4}$; $x \leq (1+y)/2$; $y \leq \min(1-x, (1+x)/2)$

Vertices $0, 0, 0$ $\frac{1}{2}, 0, 0$ $\frac{2}{3}, \frac{1}{3}, 0$ $\frac{1}{3}, \frac{2}{3}, 0$ $0, \frac{1}{2}, 0$
 $0, 0, \frac{1}{4}$ $\frac{1}{2}, 0, \frac{1}{4}$ $\frac{2}{3}, \frac{1}{3}, \frac{1}{4}$ $\frac{1}{3}, \frac{2}{3}, \frac{1}{4}$ $0, \frac{1}{2}, \frac{1}{4}$

Symmetry operations

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

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

								General:	
12	l	1	(1) x, y, z (4) $x, y, \bar{z} + \frac{1}{2}$ (7) $\bar{y}, \bar{x}, z + \frac{1}{2}$ (10) $\bar{y}, \bar{x}, \bar{z}$	(2) $\bar{y}, x - y, z$ (5) $\bar{y}, x - y, \bar{z} + \frac{1}{2}$ (8) $\bar{x} + y, y, z + \frac{1}{2}$ (11) $\bar{x} + y, y, \bar{z}$	(3) $\bar{x} + y, \bar{x}, z$ (6) $\bar{x} + y, \bar{x}, \bar{z} + \frac{1}{2}$ (9) $x, x - y, z + \frac{1}{2}$ (12) $x, x - y, \bar{z}$				$h\bar{h}0l: l = 2n$ $000l: l = 2n$
			Special: as above, plus						
6	k	$m..$	$x, y, \frac{1}{4}$	$\bar{y}, x - y, \frac{1}{4}$	$\bar{x} + y, \bar{x}, \frac{1}{4}$	$\bar{y}, \bar{x}, \frac{3}{4}$	$\bar{x} + y, y, \frac{3}{4}$	$x, x - y, \frac{3}{4}$	no extra conditions
6	j	$..2$	$x, \bar{x}, 0$	$x, 2x, 0$	$2\bar{x}, \bar{x}, 0$	$x, \bar{x}, \frac{1}{2}$	$x, 2x, \frac{1}{2}$	$2\bar{x}, \bar{x}, \frac{1}{2}$	$hkil: l = 2n$
4	i	$3..$	$\frac{2}{3}, \frac{1}{3}, z$	$\frac{2}{3}, \frac{1}{3}, \bar{z} + \frac{1}{2}$	$\frac{2}{3}, \frac{1}{3}, z + \frac{1}{2}$	$\frac{2}{3}, \frac{1}{3}, \bar{z}$			
4	h	$3..$	$\frac{1}{3}, \frac{2}{3}, z$	$\frac{1}{3}, \frac{2}{3}, \bar{z} + \frac{1}{2}$	$\frac{1}{3}, \frac{2}{3}, z + \frac{1}{2}$	$\frac{1}{3}, \frac{2}{3}, \bar{z}$			
4	g	$3..$	$0, 0, z$	$0, 0, \bar{z} + \frac{1}{2}$	$0, 0, z + \frac{1}{2}$	$0, 0, \bar{z}$			
2	f	$\bar{6}..$	$\frac{2}{3}, \frac{1}{3}, \frac{1}{4}$	$\frac{2}{3}, \frac{1}{3}, \frac{3}{4}$				$hkil: l = 2n$	
2	e	3.2	$\frac{2}{3}, \frac{1}{3}, 0$	$\frac{2}{3}, \frac{1}{3}, \frac{1}{2}$				$hkil: l = 2n$	
2	d	$\bar{6}..$	$\frac{1}{3}, \frac{2}{3}, \frac{1}{4}$	$\frac{1}{3}, \frac{2}{3}, \frac{3}{4}$				$hkil: l = 2n$	
2	c	3.2	$\frac{1}{3}, \frac{2}{3}, 0$	$\frac{1}{3}, \frac{2}{3}, \frac{1}{2}$				$hkil: l = 2n$	
2	b	$\bar{6}..$	$0, 0, \frac{1}{4}$	$0, 0, \frac{3}{4}$				$hkil: l = 2n$	
2	a	3.2	$0, 0, 0$	$0, 0, \frac{1}{2}$				$hkil: l = 2n$	

Symmetry of special projections

Along $[001]$ $p3m1$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
Origin at $0, 0, z$

Along $[100]$ $p11m$
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$ $\mathbf{b}' = \frac{1}{2}\mathbf{c}$
Origin at $x, 0, 0$

Along $[210]$ $p2gm$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
Origin at $x, \frac{1}{2}x, 0$