

$P4_2$

C_4^3

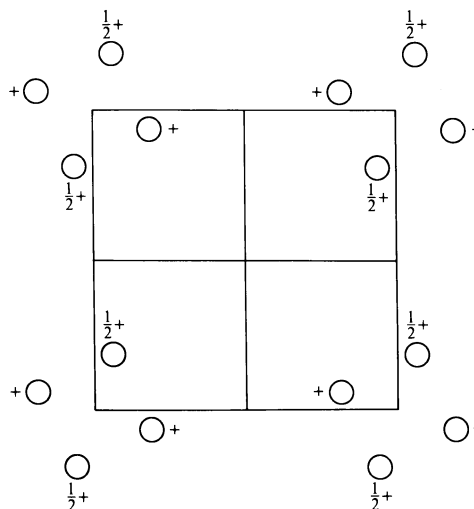
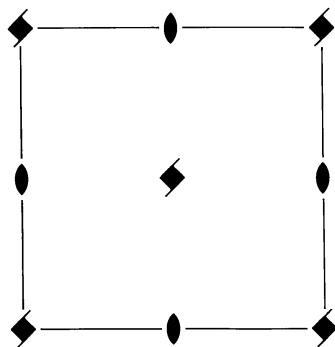
4

Tetragonal

No. 77

$P4_2$

Patterson symmetry $P4/m$



Origin on 2 on 4_2

Asymmetric unit $0 \leq x \leq \frac{1}{2}; 0 \leq y \leq \frac{1}{2}; 0 \leq z \leq 1$

Symmetry operations

(1) 1 (2) 2 $0,0,z$ (3) $4^+(0,0,\frac{1}{2}) 0,0,z$ (4) $4^-(0,0,\frac{1}{2}) 0,0,z$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates	Reflection conditions
4 <i>d</i> 1	(1) x,y,z (2) \bar{x},\bar{y},z (3) $\bar{y},x,z+\frac{1}{2}$ (4) $y,\bar{x},z+\frac{1}{2}$	General: $00l: l = 2n$
2 <i>c</i> 2..	$0,\frac{1}{2},z$ $\frac{1}{2},0,z+\frac{1}{2}$	Special: as above, plus $hkl: h+k+l = 2n$
2 <i>b</i> 2..	$\frac{1}{2},\frac{1}{2},z$ $\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$	$hkl: l = 2n$
2 <i>a</i> 2..	$0,0,z$ $0,0,z+\frac{1}{2}$	$hkl: l = 2n$

Symmetry of special projections

Along $[001]$ $p4$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
Origin at $0,0,z$

Along $[100]$ $p1m1$
 $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
Origin at $x,0,0$

Along $[110]$ $p1m1$
 $\mathbf{a}' = \frac{1}{2}(-\mathbf{a} + \mathbf{b})$ $\mathbf{b}' = \mathbf{c}$
Origin at $x,x,0$