

Tetragonal

4

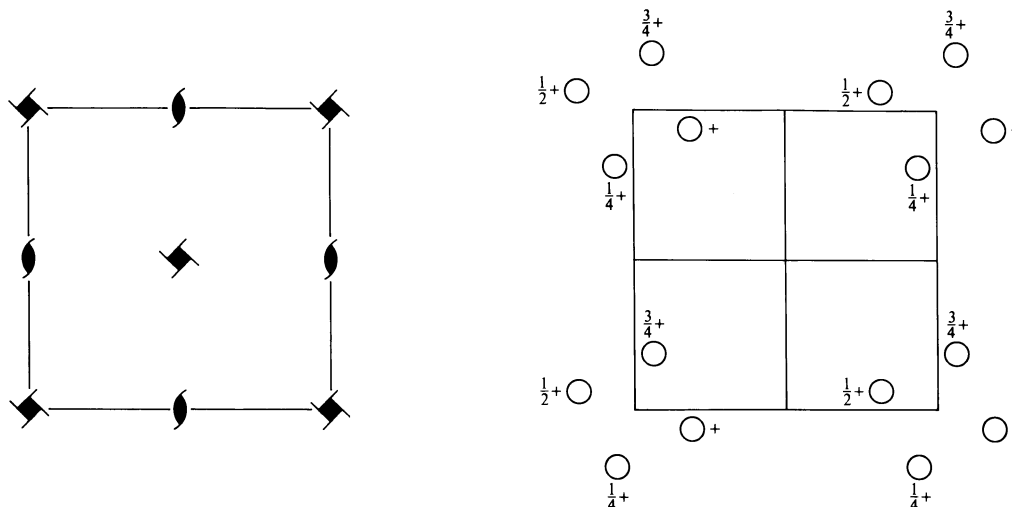
C_4^4

$P4_3$

Patterson symmetry $P4/m$

$P4_3$

No. 78



Origin on 4_3

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) $2(0, 0, \frac{1}{2})$ 0, 0, z (3) $4^+(0, 0, \frac{3}{4})$ 0, 0, z (4) $4^-(0, 0, \frac{1}{4})$ 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 a 1	(1) x, y, z (2) $\bar{x}, \bar{y}, z + \frac{1}{2}$ (3) $\bar{y}, x, z + \frac{3}{4}$ (4) $y, \bar{x}, z + \frac{1}{4}$	General: $00l : l = 4n$

Symmetry of special projections

Along [001] $p4$ $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$ Origin at 0, 0, z	Along [100] $p1g1$ $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$ Origin at $x, 0, 0$	Along [110] $p1g1$ $\mathbf{a}' = \frac{1}{2}(-\mathbf{a} + \mathbf{b})$ $\mathbf{b}' = \mathbf{c}$ Origin at $x, x, 0$
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Maximal non-isomorphic subgroups

I [2] $P2_1(4)$ 1; 2

IIa none

IIb none

Maximal isomorphic subgroups of lowest index

IIc [2] $C4_3(\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b})(P4_3, 78)$; [3] $P4_1(\mathbf{c}' = 3\mathbf{c})(76)$; [5] $P4_3(\mathbf{c}' = 5\mathbf{c})(78)$

Minimal non-isomorphic supergroups

I [2] $P4_3, 22(95)$; [2] $P4_3, 2_1, 2(96)$

II [2] $I4_1(80)$; [2] $P4_2(\mathbf{c}' = \frac{1}{2}\mathbf{c})(77)$