

$\bar{4}2_12$

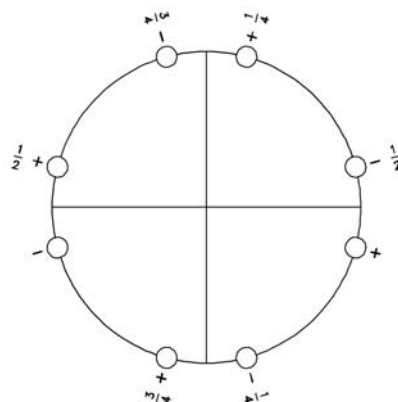
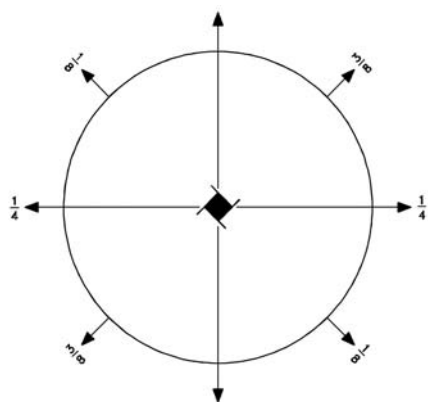
422

Tetragonal

No. 31

$\bar{4}2_12$

Patterson symmetry $\bar{4}/mmm$



Origin on $2[100]$ at $4_1(2,1)1$

Asymmetric unit $0 \leq z \leq \frac{1}{8}$

Symmetry operations

- | | | | |
|---------------|----------------------------|------------------------------|-------------------------------|
| (1) 1 | (2) $2(\frac{1}{2}) 0,0,z$ | (3) $4^+(\frac{1}{4}) 0,0,z$ | (4) $4^-(\frac{3}{4}) 0,0,z$ |
| (5) 2 $x,0,0$ | (6) 2 $0,y,\frac{1}{4}$ | (7) 2 $x,x,\frac{1}{8}$ | (8) 2 $x,\bar{x},\frac{3}{8}$ |

Generators selected (1); $t(0,0,1)$; (2); (3); (5)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
8 <i>c</i> 1	(1) x, y, z (5) x, \bar{y}, \bar{z}	(2) $\bar{x}, \bar{y}, z + \frac{1}{2}$ (6) $\bar{x}, y, \bar{z} + \frac{1}{2}$	(3) $\bar{y}, x, z + \frac{1}{4}$ (7) $y, x, \bar{z} + \frac{1}{4}$	(4) $y, \bar{x}, z + \frac{3}{4}$ (8) $\bar{y}, \bar{x}, \bar{z} + \frac{3}{4}$	General: $l : l = 4n$ Special: no extra conditions
4 <i>b</i> . . 2	$x, x, \frac{1}{8}$	$\bar{x}, \bar{x}, \frac{5}{8}$	$\bar{x}, x, \frac{3}{8}$	$x, \bar{x}, \frac{7}{8}$	
4 <i>a</i> . 2 .	$x, 0, 0$	$\bar{x}, 0, \frac{1}{2}$	$0, x, \frac{1}{4}$	$0, \bar{x}, \frac{3}{4}$	

Symmetry of special projections

Along [001] $4mm$	Along [100] $\bar{4}2mg$	Along [110] $\bar{4}2mg$
Origin at 0, 0, z	$\mathbf{a}' = \mathbf{c}$ Origin at $x, 0, 0$	$\mathbf{a}' = \mathbf{c}$ Origin at $x, x, \frac{1}{8}$

Maximal non-isotypic non-enantiomorphic subgroups

I	$[2] \bar{4}_1 11 (\bar{4}_1, 24)$	1; 2; 3; 4
	$[2] \bar{4}_1 21 (\bar{4}_1 222_1, 14)$	1; 2; 5; 6
	$[2] \bar{4}_1 12 (\bar{4}_1 222_1, 14)$	1; 2; 7; 8

IIa none

IIb none

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc $[3] \bar{4}_3 22 (\mathbf{c}' = 3\mathbf{c}) (33)$; $[5] \bar{4}_5 22 (\mathbf{c}' = 5\mathbf{c}) (31)$

Minimal non-isotypic non-enantiomorphic supergroups

I none

II $[2] \bar{4}_2 22 (\mathbf{c}' = \frac{1}{2}\mathbf{c}) (32)$