

$\bar{4}22$

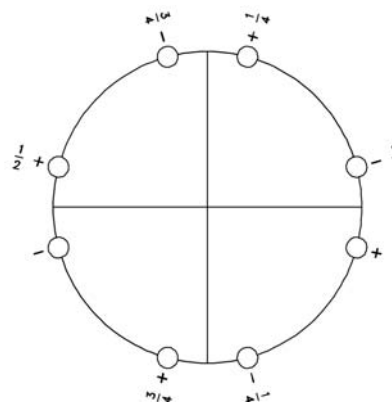
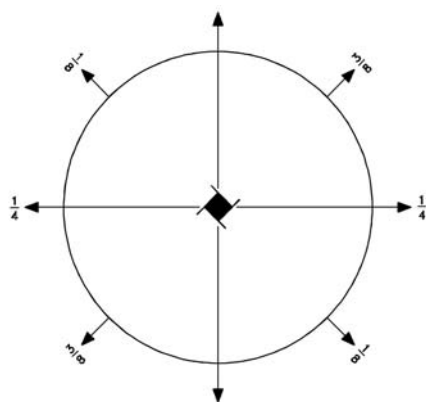
422

Tetragonal

No. 31

$\bar{4}22$

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

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

Positions

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

Reflection conditions

General:

$$l : l = 4n$$

Special: no extra conditions

8	<i>c</i>	1	(1) x, y, z	(2) $\bar{x}, \bar{y}, z + \frac{1}{2}$	(3) $\bar{y}, x, z + \frac{1}{4}$	(4) $y, \bar{x}, z + \frac{3}{4}$
			(5) x, \bar{y}, \bar{z}	(6) $\bar{x}, y, \bar{z} + \frac{1}{2}$	(7) $y, x, \bar{z} + \frac{1}{4}$	(8) $\bar{y}, \bar{x}, \bar{z} + \frac{3}{4}$

4	<i>b</i>	$\dots 2$	$x, x, \frac{1}{8}$	$\bar{x}, \bar{x}, \frac{5}{8}$	$\bar{x}, x, \frac{3}{8}$	$x, \bar{x}, \frac{7}{8}$
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4	<i>a</i>	$\dots 2$	$x, 0, 0$	$\bar{x}, 0, \frac{1}{2}$	$0, x, \frac{1}{4}$	$0, \bar{x}, \frac{3}{4}$
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Symmetry of special projections

Along [001] $4mm$

Along [100] $\bar{4}2mg$

Along [110] $\bar{4}2mg$

Origin at $0, 0, z$

$\mathbf{a}' = \mathbf{c}$

$\mathbf{a}' = \mathbf{c}$

Origin at $x, 0, 0$

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

IIa none

IIb none

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc $[3] \bar{4}_3 22 (\mathbf{c}' = 3\mathbf{c}) (33)$; $[5] \bar{4}_1 22 (\mathbf{c}' = 5\mathbf{c}) (31)$

Minimal non-isotypic non-enantiomorphic supergroups

I none

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