

$\bar{4}mm$

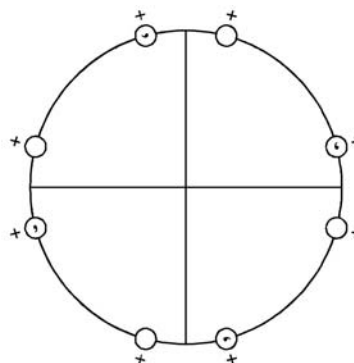
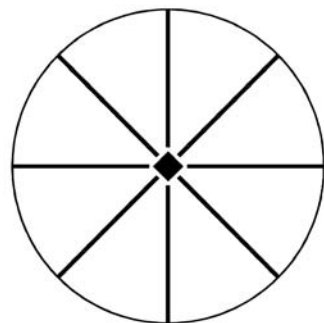
$4mm$

Tetragonal

No. 34

$\bar{4}mm$

Patterson symmetry $\bar{4}4/mmm$



Origin on $4mm$

Asymmetric unit $0 \leq x; 0 \leq y; 0 \leq z \leq 1; x \leq y$

Symmetry operations

- | | | | |
|------------------------------------|------------------------------------|---|--|
| (1) 1
(1 0,0,0) | (2) 2 $0,0,z$
(2_z 0,0,0) | (3) 4^+ $0,0,z$
(4_z^+ 0,0,0) | (4) 4^- $0,0,z$
(4_z^- 0,0,0) |
| (5) m_x $0,z$
(m_y 0,0,0) | (6) m $0,y,z$
(m_x 0,0,0) | (7) m x,\bar{x},z
(m_{xy} 0,0,0) | (8) m x,x,z
($m_{\bar{y}}$ 0,0,0) |

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

Positions

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

Symmetry of special projections

Along [001] $4mm$

Along [100] $\bar{4}11m$

Along [110] $\bar{4}11m$

Origin at $0, 0, z$

$\mathbf{a}' = \mathbf{c}$
Origin at $x, 0, 0$

$\mathbf{a}' = \mathbf{c}$
Origin at $x, x, 0$

Maximal non-isotypic non-enantiomorphic subgroups

- I** [2] $\bar{4}111$ ($\bar{4}$, 23) 1; 2; 3; 4
 [2] $\bar{4}2m1$ ($\bar{4}mm2$, 15) 1; 2; 5; 6
 [2] $\bar{4}21m$ ($\bar{4}mm2$, 15) 1; 2; 7; 8

IIa none

IIb [2] $\bar{4}4cc$ ($\mathbf{c}' = 2\mathbf{c}$) (36); [2] $\bar{4}_2mc$ ($\mathbf{c}' = 2\mathbf{c}$) ($\bar{4}_2cm$, 35); [2] $\bar{4}_2cm$ ($\mathbf{c}' = 2\mathbf{c}$) (35)

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc [2] $\bar{4}4mm$ ($\mathbf{c}' = 2\mathbf{c}$) (34)

Minimal non-isotypic non-enantiomorphic supergroups

I [2] $\bar{4}/mmm$ (39)

II none