

$\bar{4}2m$

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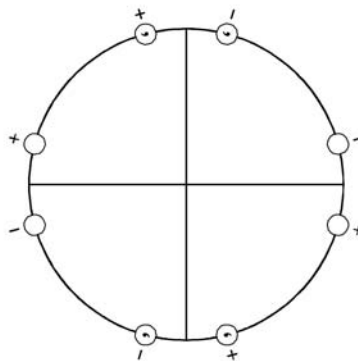
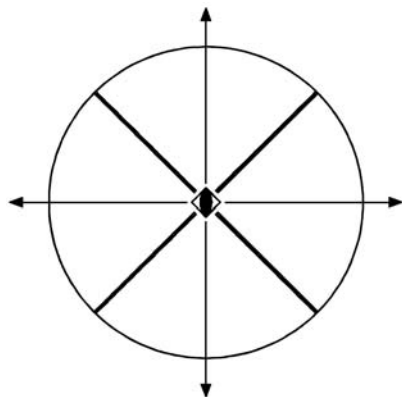
Tetragonal

No. 37

$\bar{4}2m$

Patterson symmetry $\bar{4}/mmm$

FIRST SETTING



Origin at $\bar{4}2m$

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

Symmetry operations

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

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

Positions

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

Symmetry of special projections

Along [001] $4mm$

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

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

Origin at $0, 0, z$

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

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

Origin at $x, 0, 0$

Origin at $x, x, 0$

Maximal non-isotypic non-enantiomorphic subgroups

- I** [2] $\bar{4}11$ ($\bar{4}, 27$) 1; 2; 3; 4
 [2] $\bar{4}21m$ ($\bar{4}mm2, 15$) 1; 2; 7; 8
 [2] $\bar{4}221$ ($\bar{4}222, 13$) 1; 2; 5; 6

IIa none

IIb [2] $\bar{4}2c$ ($\mathbf{c}' = 2\mathbf{c}$) (38)

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc [2] $\bar{4}2m$ ($\mathbf{c}' = 2\mathbf{c}$) (37)

Minimal non-isotypic non-enantiomorphic supergroups

I [2] $\bar{4}/mmm$ (39); [2] $\bar{4}_2/mmc$ (41)

II none

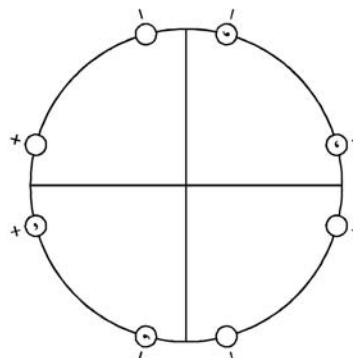
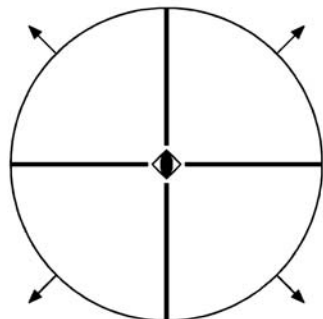
$\bar{4}m2$ $\bar{4}m2$

Tetragonal

No. 37

 $\bar{4}m2$ Patterson symmetry $\bar{4}/mmm$

SECOND SETTING

Origin at $\bar{4}m2$ Asymmetric unit $0 \leq x; 0 \leq y; 0 \leq z \leq 1; x \leq y$

Symmetry operations

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

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

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
8 <i>g</i> 1	(1) x, y, z (5) x, \bar{y}, z	(2) \bar{x}, \bar{y}, z (6) \bar{x}, y, z	(3) y, \bar{x}, \bar{z} (7) y, x, \bar{z}	(4) \bar{y}, x, \bar{z} (8) $\bar{y}, \bar{x}, \bar{z}$	General: no conditions Special: no extra conditions
4 <i>f</i> . <i>m</i> .	$x, 0, z$	$\bar{x}, 0, z$	$0, \bar{x}, \bar{z}$	$0, x, \bar{z}$	
4 <i>e</i> . . 2	$x, x, \frac{1}{2}$	$\bar{x}, \bar{x}, \frac{1}{2}$	$x, \bar{x}, \frac{1}{2}$	$\bar{x}, x, \frac{1}{2}$	
4 <i>d</i> . . 2	$x, x, 0$	$\bar{x}, \bar{x}, 0$	$x, \bar{x}, 0$	$\bar{x}, x, 0$	
2 <i>c</i> 2 <i>mm</i> .	$0, 0, z$	$0, 0, \bar{z}$			
1 <i>b</i> $\bar{4}m2$	$0, 0, \frac{1}{2}$				
1 <i>a</i> $\bar{4}m2$	$0, 0, 0$				

Symmetry of special projections

Along [001] $4mm$

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

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

Origin at $0, 0, z$

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

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

Origin at $x, 0, 0$

Origin at $x, x, 0$

Maximal non-isotypic non-enantiomorphic subgroups

- I** [2] $\bar{4}11$ ($\bar{4}, 27$) 1; 2; 3; 4
 [2] $2m1$ ($2mm, 15$) 1; 2; 5; 6
 [2] 212 ($222, 13$) 1; 2; 7; 8

IIa none

IIb [2] $\bar{4}c2$ ($c' = 2c$) ($\bar{4}2c, 38$)

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc [2] $\bar{4}m2$ ($c' = 2c$) ($\bar{4}2m, 37$)

Minimal non-isotypic non-enantiomorphic supergroups

I [2] $4/mmm$ (39); [2] $4_2/mmc$ (41)

II none