

$\bar{4}22$

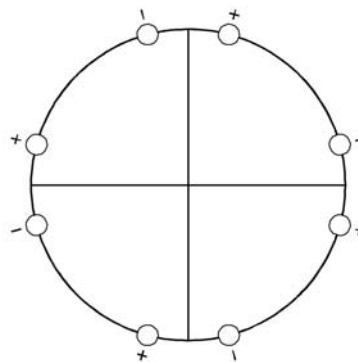
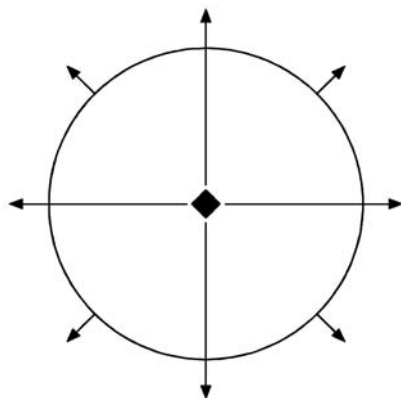
422

Tetragonal

No. 30

$\bar{4}22$

Patterson symmetry $\bar{4}/mmm$



Origin at 422

Asymmetric unit $0 \leq x; 0 \leq y; 0 \leq z \leq \frac{1}{2}$

Symmetry operations

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

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

Positions

		Coordinates				Reflection conditions
Multiplicity, Wyckoff letter, Site symmetry						General: no conditions
8	<i>h</i> 1	(1) x, y, z (5) \bar{x}, y, \bar{z}	(2) \bar{x}, \bar{y}, z (6) x, \bar{y}, \bar{z}	(3) \bar{y}, x, z (7) y, x, \bar{z}	(4) y, \bar{x}, z (8) $\bar{y}, \bar{x}, \bar{z}$	Special: no extra conditions
4	<i>g</i> .2.	$x, 0, \frac{1}{2}$	$\bar{x}, 0, \frac{1}{2}$	$0, x, \frac{1}{2}$	$0, \bar{x}, \frac{1}{2}$	
4	<i>f</i> .2.	$x, 0, 0$	$\bar{x}, 0, 0$	$0, x, 0$	$0, \bar{x}, 0$	
4	<i>e</i> ..2	$x, x, \frac{1}{2}$	$\bar{x}, \bar{x}, \frac{1}{2}$	$\bar{x}, x, \frac{1}{2}$	$x, \bar{x}, \frac{1}{2}$	
4	<i>d</i> ..2	$x, x, 0$	$\bar{x}, \bar{x}, 0$	$\bar{x}, x, 0$	$x, \bar{x}, 0$	
2	<i>c</i> 4..	$0, 0, z$	$0, 0, \bar{z}$			
1	<i>b</i> 422	$0, 0, \frac{1}{2}$				
1	<i>a</i> 422	$0, 0, 0$				

Symmetry of special projections

Along [001] $4mm$

Origin at $0, 0, z$

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

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

Origin at $x, 0, 0$

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

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

Origin at $x, x, 0$

Maximal non-isotypic non-enantiomorphic subgroups

I [2] $\bar{4}411$ ($\bar{4}4, 23$) 1; 2; 3; 4
 [2] $\bar{4}221$ ($\bar{4}222, 13$) 1; 2; 5; 6
 [2] $\bar{4}212$ ($\bar{4}222, 13$) 1; 2; 7; 8

IIa none

IIb [2] $\bar{4}_222$ ($\mathbf{c}' = 2\mathbf{c}$) (32)

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc [2] $\bar{4}422$ ($\mathbf{c}' = 2\mathbf{c}$) (30)

Minimal non-isotypic non-enantiomorphic supergroups

I [2] $\bar{4}/mmm$ (39); [2] $\bar{4}/mcc$ (40)

II none