

$\mu m c m$

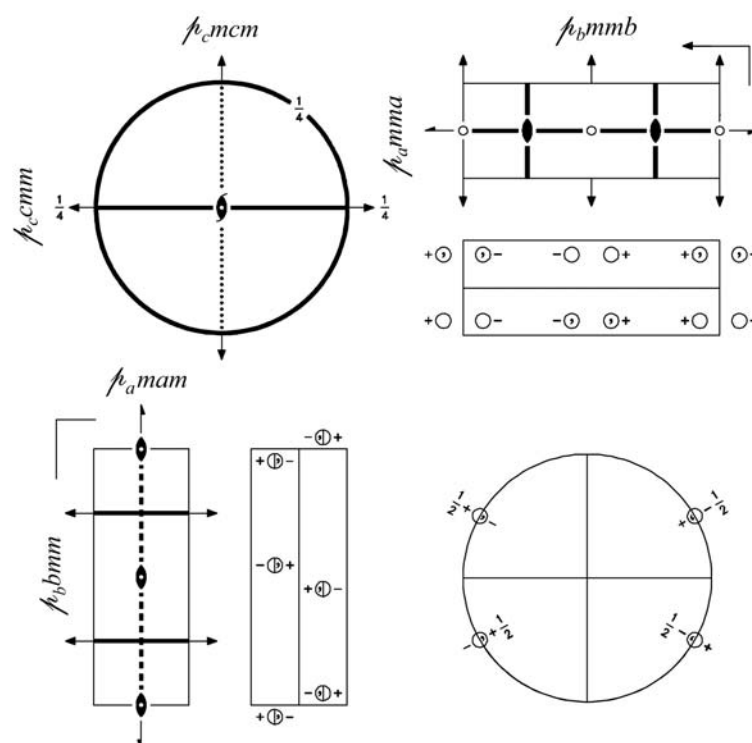
$m m m$

Orthorhombic

No. 22

$\mu 2/m 2/c 2_1/m$

Patterson symmetry $\mu m m m$



Origin at centre ($2/m$) at $2/mc2_1$

Asymmetric unit $0 \leq x; 0 \leq z \leq \frac{1}{4}$

Symmetry operations

- | | | | |
|--|--|------------------------------------|---|
| (1) 1 (1 0,0,0) | (2) 2 $0, y, \frac{1}{4}$ (2_y 0,0, $\frac{1}{2}$) | (3) 2 $x, 0, 0$ (2_x 0,0,0) | (4) $2(\frac{1}{2}) 0, 0, z$ (2_z 0,0, $\frac{1}{2}$) |
| (5) $\bar{1} 0, 0, 0$ ($\bar{1}$ 0,0,0) | (6) $c x, 0, z$ (m_y 0,0, $\frac{1}{2}$) | (7) $m 0, y, z$ (m_x 0,0,0) | (8) $m x, y, \frac{1}{4}$ (m_z 0,0, $\frac{1}{2}$) |

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

Positions

| Multiplicity, Wyckoff letter, Site symmetry | | Coordinates | | | | Reflection conditions |
|---|----------------|--|--|--|--|---|
| 8 | f 1 | (1) x, y, z (5) $\bar{x}, \bar{y}, \bar{z}$ | (2) $\bar{x}, y, \bar{z} + \frac{1}{2}$ (6) $x, \bar{y}, z + \frac{1}{2}$ | (3) x, \bar{y}, \bar{z} (7) \bar{x}, y, z | (4) $\bar{x}, \bar{y}, z + \frac{1}{2}$ (8) $x, y, \bar{z} + \frac{1}{2}$ | General: no conditions Special: no extra conditions |
| 4 | e $\dots m$ | $x, y, \frac{1}{4}$ | $\bar{x}, y, \frac{1}{4}$ | $x, \bar{y}, \frac{3}{4}$ | $\bar{x}, \bar{y}, \frac{3}{4}$ | |
| 4 | d $m\dots$ | $0, y, z$ | $0, y, \bar{z} + \frac{1}{2}$ | $0, \bar{y}, \bar{z}$ | $0, \bar{y}, z + \frac{1}{2}$ | |
| 4 | c $2\dots$ | $x, 0, 0$ | $\bar{x}, 0, \frac{1}{2}$ | $\bar{x}, 0, 0$ | $x, 0, \frac{1}{2}$ | |
| 2 | b $m2m$ | $0, y, \frac{1}{4}$ | $0, \bar{y}, \frac{3}{4}$ | | | |
| 2 | a $2/m\dots$ | $0, 0, 0$ | $0, 0, \frac{1}{2}$ | | | |

Symmetry of special projections

| | | |
|---------------------|---|--|
| Along [001] $2mm$ | Along [100] $\bar{f}2mg$ | Along [010] $\bar{f}2mm$ |
| Origin at $0, 0, z$ | $\mathbf{a}' = \mathbf{c}$ Origin at $x, 0, 0$ | $\mathbf{a}' = \frac{1}{2}\mathbf{c}$ Origin at $0, y, 0$ |

Maximal non-isotypic non-enantiomorphic subgroups

| | | |
|----------|---|------------|
| I | $[2]\bar{f}2cm$ (19) | 1; 3; 6; 8 |
| | $[2]\bar{f}m2m$ ($\bar{f}2mm$, 18) | 1; 2; 7; 8 |
| | $[2]\bar{f}mc2_1$ (17) | 1; 4; 6; 7 |
| | $[2]\bar{f}222_1$ (14) | 1; 2; 3; 4 |
| | $[2]\bar{f}112_1/m$ (12) | 1; 4; 5; 8 |
| | $[2]\bar{f}12/c1$ ($\bar{f}2/c11$, 7) | 1; 2; 5; 6 |
| | $[2]\bar{f}2/m11$ (6) | 1; 3; 5; 7 |

IIa none

IIb none

Maximal isotypic subgroups and enantiomorphic subgroups of lowest index

IIc $[3]\bar{f}mcm$ ($\mathbf{c}' = 3\mathbf{c}$) (22)

Minimal non-isotypic non-enantiomorphic supergroups

I $[3]\bar{f}6_3/mmc$ (75)

II $[2]\bar{f}mmm$ ($\mathbf{c}' = \frac{1}{2}\mathbf{c}$) (20)