

D_{2d}^5 $P\bar{4}m2$

No. 115

 $P\bar{4}m2$ Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3); (5)

General position

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

8 l 1(1) x, y, z (2) \bar{x}, \bar{y}, z (3) y, \bar{x}, \bar{z} (4) \bar{y}, x, \bar{z}
(5) x, \bar{y}, z (6) \bar{x}, y, z (7) y, x, \bar{z} (8) $\bar{y}, \bar{x}, \bar{z}$

I Maximal translationengleiche subgroups

[2] $P\bar{4}11$ (81, $P\bar{4}$) 1; 2; 3; 4
[2] $P2m1$ (25, $Pmm2$) 1; 2; 5; 6
[2] $P212$ (21, $C222$) 1; 2; 7; 8 $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{c}' = 2\mathbf{c}$ $P\bar{4}c2$ (116) $\langle 2; 3; 5 + (0,0,1) \rangle$ $\mathbf{a}, \mathbf{b}, 2\mathbf{c}$ $P\bar{4}c2$ (116) $\langle 2; (3; 5) + (0,0,1) \rangle$ $\mathbf{a}, \mathbf{b}, 2\mathbf{c}$

0,0,1/2

 $P\bar{4}m2$ (115) $\langle 2; 3; 5 \rangle$ $\mathbf{a}, \mathbf{b}, 2\mathbf{c}$ $P\bar{4}m2$ (115) $\langle 2; 5; 3 + (0,0,1) \rangle$ $\mathbf{a}, \mathbf{b}, 2\mathbf{c}$

0,0,1/2

[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$ $C\bar{4}m2_1$ (113, $P\bar{4}2_1m$) $\langle 2; 3; 5 + (0,1,0) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$ $C\bar{4}m2_1$ (113, $P\bar{4}2_1m$) $\langle 2; 5; 3 + (1,0,0) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$

1/2,1/2,0

 $C\bar{4}m2$ (111, $P\bar{4}2m$) $\langle 2; 3; 5 \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$ $C\bar{4}m2$ (111, $P\bar{4}2m$) $\langle 2; (3; 5) + (1,0,0) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$

1/2,1/2,0

[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$ $F\bar{4}m2$ (121, $I\bar{4}2m$) $\langle 2; 3; 5 \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$ $F\bar{4}m2$ (121, $I\bar{4}2m$) $\langle 2; 5; 3 + (0,0,1) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$

0,0,1/2

 $F\bar{4}m2$ (121, $I\bar{4}2m$) $\langle 2; 3 + (1,0,0); 5 + (0,1,0) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$

1/2,1/2,0

 $F\bar{4}m2$ (121, $I\bar{4}2m$) $\langle 2; 3 + (1,0,1); 5 + (0,1,0) \rangle$ $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$

1/2,1/2,1/2

[3] $\mathbf{c}' = 3\mathbf{c}$ $P\bar{4}m2$ (115) $\langle 2; 3; 5 \rangle$ $\mathbf{a}, \mathbf{b}, 3\mathbf{c}$ $P\bar{4}m2$ (115) $\langle 2; 5; 3 + (0,0,2) \rangle$ $\mathbf{a}, \mathbf{b}, 3\mathbf{c}$

0,0,1

 $P\bar{4}m2$ (115) $\langle 2; 5; 3 + (0,0,4) \rangle$ $\mathbf{a}, \mathbf{b}, 3\mathbf{c}$

0,0,2

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$ $P\bar{4}m2$ (115) $\langle 2; 5; 3 + (0,0,2u) \rangle$
prime $p > 2$; $0 \leq u < p$
 p conjugate subgroups $\mathbf{a}, \mathbf{b}, p\mathbf{c}$ 0,0, u [p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$ $P\bar{4}m2$ (115) $\langle 2 + (2u, 2v, 0); 3 + (u - v, u + v, 0); 5 + (0, 2v, 0) \rangle$
prime $p > 2$; $0 \leq u < p$; $0 \leq v < p$
 p^2 conjugate subgroups $p\mathbf{a}, p\mathbf{b}, \mathbf{c}$ $u, v, 0$

I Minimal translationengleiche supergroups

[2] $P4/mmm$ (123); [2] $P4/nmm$ (129); [2] $P4_2/mmc$ (131); [2] $P4_2/nmc$ (137)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

[2] $C\bar{4}m2$ (111, $P\bar{4}2m$); [2] $I\bar{4}m2$ (119)

• Decreased unit cell

none