

D_{2d}^9
 $I\bar{4}m2$

No. 119

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

General position

 Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates
 $(0,0,0)+ (\frac{1}{2},\frac{1}{2},\frac{1}{2})+$

 16 j 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] $I\bar{4}11$ (82, $I\bar{4}$) (1; 2; 3; 4)+

 [2] $I2m1$ (44, $Imm2$) (1; 2; 5; 6)+

 [2] $I212$ (22, $F222$) (1; 2; 7; 8)+

 $\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$
II Maximal klassengleiche subgroups

• Loss of centring translations

 [2] $P\bar{4}n2$ (118) 1; 2; 3; 4; (5; 6; 7; 8) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$

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0, 1/2, 1/4

0, 1/2, 1/4

• Enlarged unit cell

 [3] $\mathbf{c}' = 3\mathbf{c}$
 $\left\{ \begin{array}{l} I\bar{4}m2 \text{ (119)} \\ I\bar{4}m2 \text{ (119)} \\ I\bar{4}m2 \text{ (119)} \end{array} \right. \langle 2; 3; 5 \rangle$
 $\mathbf{a}, \mathbf{b}, 3\mathbf{c}$
 $\langle 2; 5; 3 + (0,0,2) \rangle$
 $\mathbf{a}, \mathbf{b}, 3\mathbf{c}$

0, 0, 1

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

0, 0, 2

• Series of maximal isomorphic subgroups

 [p] $\mathbf{c}' = p\mathbf{c}$
 $I\bar{4}m2$ (119) $\langle 2; 5; 3 + (0,0,2u) \rangle$
 prime $p > 2$; $0 \leq u < p$
 p conjugate subgroups

 $\mathbf{a}, \mathbf{b}, p\mathbf{c}$

 0, 0, u

 [p²] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$
 $I\bar{4}m2$ (119) $\langle 2 + (2u, 2v, 0); 3 + (u - v, u + v, 0); 5 + (0, 2v, 0) \rangle$
 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] $I4/mmm$ (139); [2] $I4_1/amd$ (141); [3] $F\bar{4}3m$ (216)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

none

• Decreased unit cell

 [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $C\bar{4}m2$ (111, $P\bar{4}2m$)