

D_2^3
 $P2_12_12$

No. 18

 $P2_12_12$
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3)

General position

 Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

 4 c 1 (1) x, y, z (2) \bar{x}, \bar{y}, z (3) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \bar{z}$ (4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z}$
I Maximal translationengleiche subgroups

| | | | |
|-----------------------------|------|----------------|-----------|
| [2] $P12_11$ (4) | 1; 3 | | 1/4, 0, 0 |
| [2] $P2_111$ (4, $P12_11$) | 1; 4 | c, a, b | 0, 1/4, 0 |
| [2] $P112$ (3) | 1; 2 | | |

II Maximal klassengleiche subgroups

• Enlarged unit cell

| | | | |
|-------------------|--|-----------------|-------------|
| [2] $c' = 2c$ | | | |
| $P2_12_12_1$ (19) | $\langle 3; 2 + (0, 0, 1) \rangle$ | a, b, 2c | 1/4, 0, 1/2 |
| $P2_12_12_1$ (19) | $\langle (2; 3) + (0, 0, 1) \rangle$ | a, b, 2c | 1/4, 0, 0 |
| $P2_12_12$ (18) | $\langle 2; 3 \rangle$ | a, b, 2c | |
| $P2_12_12$ (18) | $\langle 2; 3 + (0, 0, 1) \rangle$ | a, b, 2c | 0, 0, 1/2 |
| [3] $a' = 3a$ | | | |
| $P2_12_12$ (18) | $\langle 2; 3 + (1, 0, 0) \rangle$ | 3a, b, c | |
| $P2_12_12$ (18) | $\langle 2 + (2, 0, 0); 3 + (3, 0, 0) \rangle$ | 3a, b, c | 1, 0, 0 |
| $P2_12_12$ (18) | $\langle 2 + (4, 0, 0); 3 + (5, 0, 0) \rangle$ | 3a, b, c | 2, 0, 0 |
| [3] $b' = 3b$ | | | |
| $P2_12_12$ (18) | $\langle 2; 3 + (0, 1, 0) \rangle$ | a, 3b, c | |
| $P2_12_12$ (18) | $\langle 2 + (0, 2, 0); 3 + (0, 1, 0) \rangle$ | a, 3b, c | 0, 1, 0 |
| $P2_12_12$ (18) | $\langle 2 + (0, 4, 0); 3 + (0, 1, 0) \rangle$ | a, 3b, c | 0, 2, 0 |
| [3] $c' = 3c$ | | | |
| $P2_12_12$ (18) | $\langle 2; 3 \rangle$ | a, b, 3c | |
| $P2_12_12$ (18) | $\langle 2; 3 + (0, 0, 2) \rangle$ | a, b, 3c | 0, 0, 1 |
| $P2_12_12$ (18) | $\langle 2; 3 + (0, 0, 4) \rangle$ | a, b, 3c | 0, 0, 2 |

• Series of maximal isomorphic subgroups

| | | | |
|-------------------|---|-----------------|-----------|
| [p] $a' = pa$ | | | |
| $P2_12_12$ (18) | $\langle 2 + (2u, 0, 0); 3 + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups | pa, b, c | $u, 0, 0$ |
| [p] $b' = pb$ | | | |
| $P2_12_12$ (18) | $\langle 2 + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2}, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups | a, pb, c | $0, u, 0$ |
| [p] $c' = pc$ | | | |
| $P2_12_12$ (18) | $\langle 2; 3 + (0, 0, 2u) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups | a, b, pc | $0, 0, u$ |

I Minimal translationengleiche supergroups

 [2] $Pbam$ (55); [2] $Pccn$ (56); [2] $Pbcm$ (57); [2] $Pnmm$ (58); [2] $Pmmm$ (59); [2] $Pbcn$ (60); [2] $P42_12$ (90); [2] $P4_22_12$ (94);
[2] $P\bar{4}2_1m$ (113); [2] $P\bar{4}2_1c$ (114)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $A2_122$ (20, $C222_1$); [2] $B22_12$ (20, $C222_1$); [2] $C222$ (21); [2] $I222$ (23)

• Decreased unit cell

 [2] $a' = \frac{1}{2}a$ $P22_12$ (17, $P222_1$); [2] $b' = \frac{1}{2}b$ $P2_122$ (17, $P222_1$)