

$Pnma$

No. 62

 $P2_1/n2_1/m2_1/a$
 D_{2h}^{16}
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	<i>d</i>	1	(1) x, y, z	(2) $\bar{x} + \frac{1}{2}, \bar{y}, z + \frac{1}{2}$	(3) $\bar{x}, y + \frac{1}{2}, \bar{z}$	(4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z} + \frac{1}{2}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) $x + \frac{1}{2}, y, \bar{z} + \frac{1}{2}$	(7) $x, \bar{y} + \frac{1}{2}, z$	(8) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z + \frac{1}{2}$

I Maximal translationengleiche subgroups

[2] $Pn2_1a$ (33, $Pna2_1$)	1; 3; 6; 8	a, -c, b	
[2] $Pnm2_1$ (31, $Pmn2_1$)	1; 2; 7; 8	-b, a, c	1/4, 1/4, 0
[2] $P2_1ma$ (26, $Pmc2_1$)	1; 4; 6; 7	b, c, a	0, 1/4, 1/4
[2] $P2_12_12_1$ (19)	1; 2; 3; 4		0, 0, 1/4
[2] $P112_1/a$ (14)	1; 2; 5; 6		
[2] $P2_1/n11$ (14, $P12_1/c1$)	1; 4; 5; 8	-b, a, b + c	
[2] $P12_1/m1$ (11)	1; 3; 5; 7		

II Maximal klassengleiche subgroups

• Enlarged unit cell

[3] $\mathbf{a}' = 3\mathbf{a}$			
$\left\{ \begin{array}{l} Pnma \ (62) \\ Pnma \ (62) \\ Pnma \ (62) \end{array} \right.$	$\langle 3; 5; 2 + (1, 0, 0) \rangle$ $\langle 2 + (3, 0, 0); (3; 5) + (2, 0, 0) \rangle$ $\langle 2 + (5, 0, 0); (3; 5) + (4, 0, 0) \rangle$	3a, b, c 3a, b, c 3a, b, c	 1, 0, 0 2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$\left\{ \begin{array}{l} Pnma \ (62) \\ Pnma \ (62) \\ Pnma \ (62) \end{array} \right.$	$\langle 2; 5; 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 2, 0); 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 4, 0); 3 + (0, 1, 0) \rangle$	a, 3b, c a, 3b, c a, 3b, c	 0, 1, 0 0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$\left\{ \begin{array}{l} Pnma \ (62) \\ Pnma \ (62) \\ Pnma \ (62) \end{array} \right.$	$\langle 3; 5; 2 + (0, 0, 1) \rangle$ $\langle 2 + (0, 0, 1); (3; 5) + (0, 0, 2) \rangle$ $\langle 2 + (0, 0, 1); (3; 5) + (0, 0, 4) \rangle$	a, b, 3c a, b, 3c a, b, 3c	 0, 0, 1 0, 0, 2

• Series of maximal isomorphic subgroups

[p] $\mathbf{a}' = p\mathbf{a}$			
$Pnma \ (62)$	$\langle 2 + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0); (3; 5) + (2u, 0, 0) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	pa, b, c	$u, 0, 0$
[p] $\mathbf{b}' = p\mathbf{b}$			
$Pnma \ (62)$	$\langle (2; 5) + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2}, 0) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	a, pb, c	$0, u, 0$
[p] $\mathbf{c}' = p\mathbf{c}$			
$Pnma \ (62)$	$\langle 2 + (0, 0, \frac{p}{2} - \frac{1}{2}); (3; 5) + (0, 0, 2u) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	a, b, pc	$0, 0, u$

I Minimal translationengleiche supergroups

none

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $Amma$ (63, $Cmcm$); [2] $Bbmm$ (63, $Cmcm$); [2] $Ccme$ (64, $Cmce$); [2] $Imma$ (74)

• Decreased unit cell

 [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $Pcma$ (55, $Pbam$); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $Pbma$ (57, $Pbcm$); [2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Pnmm$ (59, $Pmnn$)