

$Pn\bar{1}m$

No. 58

 $P2_1/n2_1/n2/m$ D_{2h}^{12} 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	h	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \bar{z} + \frac{1}{2}$	(4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z} + \frac{1}{2}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) x, y, \bar{z}	(7) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z + \frac{1}{2}$	(8) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z + \frac{1}{2}$

I Maximal *translationengleiche* subgroups

[2] $Pn\bar{1}2$ (34)	1; 2; 7; 8		
[2] $Pn2_1m$ (31, $Pm\bar{1}2_1$)	1; 3; 6; 8	c, a, b	1/4, 0, 0
[2] $P2_1n\bar{1}m$ (31, $Pm\bar{1}2_1$)	1; 4; 6; 7	-c, b, a	0, 1/4, 0
[2] $P2_12_12$ (18)	1; 2; 3; 4		0, 0, 1/4
[2] $P12_1/n1$ (14, $P12_1/c1$)	1; 3; 5; 7	c, b, -a - c	
[2] $P2_1/n11$ (14, $P12_1/c1$)	1; 4; 5; 8	-b, a, b + c	
[2] $P112/m$ (10)	1; 2; 5; 6		

II Maximal *klassengleiche* subgroups

• Enlarged unit cell

[3] $\mathbf{a}' = 3\mathbf{a}$			
$\left\{ \begin{array}{l} Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \end{array} \right.$	$\langle 2; 5; 3 + (1, 0, 0) \rangle$ $\langle (2; 5) + (2, 0, 0); 3 + (3, 0, 0) \rangle$ $\langle (2; 5) + (4, 0, 0); 3 + (5, 0, 0) \rangle$	3a, b, c 3a, b, c 3a, b, c	1, 0, 0 2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$\left\{ \begin{array}{l} Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \end{array} \right.$	$\langle 2; 5; 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 2, 0); 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 4, 0); 3 + (0, 1, 0) \rangle$	a, 3b, c a, 3b, c a, 3b, c	0, 1, 0 0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$\left\{ \begin{array}{l} Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \\ Pn\bar{1}m \text{ (58)} \end{array} \right.$	$\langle 2; 5; 3 + (0, 0, 1) \rangle$ $\langle 2; 3 + (0, 0, 3); 5 + (0, 0, 2) \rangle$ $\langle 2; 3 + (0, 0, 5); 5 + (0, 0, 4) \rangle$	a, b, 3c a, b, 3c a, b, 3c	0, 0, 1 0, 0, 2

• Series of maximal isomorphic subgroups

[p] $\mathbf{a}' = p\mathbf{a}$			
$Pn\bar{1}m$ (58)	$\langle (2; 5) + (2u, 0, 0); 3 + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups	$p\mathbf{a}, \mathbf{b}, \mathbf{c}$	$u, 0, 0$
[p] $\mathbf{b}' = p\mathbf{b}$			
$Pn\bar{1}m$ (58)	$\langle (2; 5) + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2}, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$0, u, 0$
[p] $\mathbf{c}' = p\mathbf{c}$			
$Pn\bar{1}m$ (58)	$\langle 2; 3 + (0, 0, \frac{p}{2} - \frac{1}{2} + 2u); 5 + (0, 0, 2u) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$0, 0, u$

I Minimal *translationengleiche* supergroups[2] $P4/m\bar{1}c$ (128); [2] $P4_2/m\bar{1}m$ (136)II Minimal non-isomorphic *klassengleiche* supergroups

• Additional centring translations

[2] $Am\bar{1}m$ (63, $Cm\bar{1}m$); [2] $Bb\bar{1}m$ (63, $Cm\bar{1}m$); [2] $Cccm$ (66); [2] $Im\bar{1}m$ (71)

• Decreased unit cell

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Pn\bar{1}cm$ (53, $Pm\bar{1}na$); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $Pcnm$ (53, $Pm\bar{1}na$); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $Pbam$ (55)