

$P4nc$

No. 104

 $P4nc$
 C_{4v}^6
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	c	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) \bar{y}, x, z	(4) y, \bar{x}, z
			(5) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z + \frac{1}{2}$	(6) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z + \frac{1}{2}$	(7) $\bar{y} + \frac{1}{2}, \bar{x} + \frac{1}{2}, z + \frac{1}{2}$	(8) $y + \frac{1}{2}, x + \frac{1}{2}, z + \frac{1}{2}$

I Maximal translationengleiche subgroups

[2] $P411$ (75, $P4$)	1; 2; 3; 4		
[2] $P21c$ (37, $Ccc2$)	1; 2; 7; 8	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	$0, 1/2, 0$
[2] $P2n1$ (34, $Pnn2$)	1; 2; 5; 6		

II Maximal klassengleiche subgroups

• Enlarged unit cell

[3] $\mathbf{c}' = 3\mathbf{c}$			
$P4nc$ (104)	$\langle 2; 3; 5 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$			
$P4nc$ (104)	$\langle 2; 3; 5 + (0, 0, \frac{p}{2} - \frac{1}{2}) \rangle$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	
	prime $p > 2$		
	no conjugate subgroups		

[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$			
$P4nc$ (104)	$\langle 2 + (2u, 2v, 0); 3 + (u + v, -u + v, 0); 5 + (\frac{p}{2} - \frac{1}{2}, \frac{p}{2} - \frac{1}{2} + 2v, 0) \rangle$	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$u, v, 0$
	prime $p > 2; 0 \leq u < p; 0 \leq v < p$		
	p^2 conjugate subgroups		

I Minimal translationengleiche supergroups

 [2] $P4/nnc$ (126); [2] $P4/mnc$ (128)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $C4cc$ (103, $P4cc$); [2] $I4mm$ (107)

• Decreased unit cell

 [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P4bm$ (100)