

$P4_2bc$

No. 106

 $P4_2bc$
 C_{4v}^8
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>c</i>	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $\bar{y}, x, z + \frac{1}{2}$	(4) $y, \bar{x}, z + \frac{1}{2}$
			(5) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z$	(6) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z$	(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] $P4_211$ (77, $P4_2$)	1; 2; 3; 4	
[2] $P21c$ (37, $Ccc2$)	1; 2; 7; 8	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$
[2] $P2b1$ (32, $Pba2$)	1; 2; 5; 6	$0, 1/2, 0$

II Maximal klassengleiche subgroups

• Enlarged unit cell

[3] $\mathbf{c}' = 3\mathbf{c}$		
$P4_2bc$ (106)	$\langle 2; 5; 3 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$		
$P4_2bc$ (106)	$\langle 2; 5; 3 + (0, 0, \frac{p}{2} - \frac{1}{2}) \rangle$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$
	$p > 1$	
	no conjugate subgroups	

[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$		
$P4_2bc$ (106)	$\langle 2 + (2u, 2v, 0); 3 + (u + v, -u + v, 0); 5 + (\frac{p}{2} - \frac{1}{2}, \frac{p}{2} - \frac{1}{2} + 2v, 0) \rangle$	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$
	$p > 2; 0 \leq u < p; 0 \leq v < p$	$u, v, 0$
	p^2 conjugate subgroups for the prime p	

I Minimal translationengleiche supergroups

 [2] $P4_2/nbc$ (133); [2] $P4_2/mbc$ (135)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $C4_2mc$ (101, $P4_2cm$); [2] $I4cm$ (108)

• Decreased unit cell

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