

$C_{2v}^8$ 
 $Pba2$ 

No. 32

 $Pba2$ 
**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)  $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z$  (4)  $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z$ 
**I Maximal translationengleiche subgroups**

[2] $P1a1$ (7, $P1c1$ )	1; 3	$-\mathbf{a} - \mathbf{c}, \mathbf{b}, \mathbf{a}$	0, 1/4, 0
[2] $Pb11$ (7, $P1c1$ )	1; 4	$\mathbf{c}, \mathbf{a}, \mathbf{b}$	1/4, 0, 0
[2] $P112$ (3)	1; 2		

**II Maximal klassengleiche subgroups**

## • Enlarged unit cell

[2] $\mathbf{c}' = 2\mathbf{c}$			
$Pnn2$ (34)	$\langle 2; 3 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
$Pna2_1$ (33)	$\langle 3; 2 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
$Pbn2_1$ (33, $Pna2_1$ )	$\langle (2; 3) + (0, 0, 1) \rangle$	$-\mathbf{b}, \mathbf{a}, 2\mathbf{c}$	
$Pba2$ (32)	$\langle 2; 3 \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
[3] $\mathbf{a}' = 3\mathbf{a}$			
$Pba2$ (32)	$\langle 2; 3 + (1, 0, 0) \rangle$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	
$Pba2$ (32)	$\langle 2 + (2, 0, 0); 3 + (1, 0, 0) \rangle$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	1, 0, 0
$Pba2$ (32)	$\langle 2 + (4, 0, 0); 3 + (1, 0, 0) \rangle$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$Pba2$ (32)	$\langle 2; 3 + (0, 1, 0) \rangle$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	
$Pba2$ (32)	$\langle 2 + (0, 2, 0); 3 + (0, 3, 0) \rangle$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	0, 1, 0
$Pba2$ (32)	$\langle 2 + (0, 4, 0); 3 + (0, 5, 0) \rangle$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$Pba2$ (32)	$\langle 2; 3 \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	
• Series of maximal isomorphic subgroups			
[ $p$ ] $\mathbf{a}' = p\mathbf{a}$			
$Pba2$ (32)	$\langle 2 + (2u, 0, 0); 3 + (\frac{p}{2} - \frac{1}{2}, 0, 0) \rangle$	$p\mathbf{a}, \mathbf{b}, \mathbf{c}$	$u, 0, 0$
	$p > 2; 0 \leq u < p$		
	$p$ conjugate subgroups for the prime $p$		
[ $p$ ] $\mathbf{b}' = p\mathbf{b}$			
$Pba2$ (32)	$\langle 2 + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2} + 2u, 0) \rangle$	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$0, u, 0$
	$p > 2; 0 \leq u < p$		
	$p$ conjugate subgroups for the prime $p$		
[ $p$ ] $\mathbf{c}' = p\mathbf{c}$			
$Pba2$ (32)	$\langle 2; 3 \rangle$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	
	$p > 1$		
	no conjugate subgroups		

**I Minimal translationengleiche supergroups**

 [2]  $Pban$  (50); [2]  $Pcca$  (54); [2]  $Pbam$  (55); [2]  $P4bm$  (100); [2]  $P4_2bc$  (106); [2]  $P\bar{4}b2$  (117)

**II Minimal non-isomorphic klassengleiche supergroups**

## • Additional centring translations

 [2]  $Cmm2$  (35); [2]  $Aea2$  (41); [2]  $Bbe2$  (41,  $Aea2$ ); [2]  $Iba2$  (45)

## • Decreased unit cell

 [2]  $\mathbf{a}' = \frac{1}{2}\mathbf{a}$   $Pbm2$  (28,  $Pma2$ ); [2]  $\mathbf{b}' = \frac{1}{2}\mathbf{b}$   $Pma2$  (28)