

C_{2v}^{21}
 $Iba2$

No. 45

 $Iba2$
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2},\frac{1}{2},\frac{1}{2})$; (2); (3)

General position

 Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates
 $(0,0,0)+ (\frac{1}{2},\frac{1}{2},\frac{1}{2})+$

 8 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] $I1a1$ (9, $C1c1$)	(1; 3)+	$\mathbf{a-c, b, c}$
[2] $Ib11$ (9, $C1c1$)	(1; 4)+	$-\mathbf{b-c, a, c}$
[2] $I112$ (5, $A112$)	(1; 2)+	$\mathbf{b, -a-b, c}$

II Maximal klassengleiche subgroups

• Loss of centring translations

[2] $Pba2$ (32)	1; 2; 3; 4		
[2] $Pca2_1$ (29)	1; 3; (2; 4) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		1/4, 1/4, 0
[2] $Pbc2_1$ (29, $Pca2_1$)	1; 4; (2; 3) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$	$-\mathbf{b, a, c}$	1/4, 1/4, 0
[2] $Pcc2$ (27)	1; 2; (3; 4) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		

• Enlarged unit cell

[3] $\mathbf{a}' = 3\mathbf{a}$			
$\left\{ \begin{array}{l} Iba2 \text{ (45)} \\ Iba2 \text{ (45)} \\ Iba2 \text{ (45)} \end{array} \right.$	$\langle 2; 3 + (1,0,0) \rangle$ $\langle 2 + (2,0,0); 3 + (1,0,0) \rangle$ $\langle 2 + (4,0,0); 3 + (1,0,0) \rangle$	$3\mathbf{a, b, c}$ $3\mathbf{a, b, c}$ $3\mathbf{a, b, c}$	 1, 0, 0 2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$\left\{ \begin{array}{l} Iba2 \text{ (45)} \\ Iba2 \text{ (45)} \\ Iba2 \text{ (45)} \end{array} \right.$	$\langle 2; 3 + (0,1,0) \rangle$ $\langle 2 + (0,2,0); 3 + (0,3,0) \rangle$ $\langle 2 + (0,4,0); 3 + (0,5,0) \rangle$	$\mathbf{a, 3b, c}$ $\mathbf{a, 3b, c}$ $\mathbf{a, 3b, c}$	 0, 1, 0 0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$Iba2$ (45)	$\langle 2; 3 \rangle$	$\mathbf{a, b, 3c}$	

• Series of maximal isomorphic subgroups

[p] $\mathbf{a}' = p\mathbf{a}$			
$Iba2$ (45)	$\langle 2 + (2u, 0, 0); 3 + (\frac{p}{2} - \frac{1}{2}, 0, 0) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	$p\mathbf{a, b, c}$	$u, 0, 0$
[p] $\mathbf{b}' = p\mathbf{b}$			
$Iba2$ (45)	$\langle 2 + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2} + 2u, 0) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	$\mathbf{a, pb, c}$	$0, u, 0$
[p] $\mathbf{c}' = p\mathbf{c}$			
$Iba2$ (45)	$\langle 2; 3 \rangle$ $p > 2$ no conjugate subgroups	$\mathbf{a, b, pc}$	

I Minimal translationengleiche supergroups

 [2] $Ibam$ (72); [2] $Ibca$ (73); [2] $I4cm$ (108); [2] $I4_1cd$ (110); [2] $I\bar{4}c2$ (120)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

none

• Decreased unit cell

 [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $Cmm2$ (35); [2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Aem2$ (39); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $Bme2$ (39, $Aem2$)