

Ibam

No. 72

$I2/b2/a2/m$

D_{2h}^{26}

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); (5)

General position

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

16	<i>k</i>	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \bar{z}$	(4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) x, y, \bar{z}	(7) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z$	(8) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z$

I Maximal *translationengleiche* subgroups

[2] $Ib2m$ (46, $Ima2$)	(1; 3; 6; 8)+	c, a, b	0, 0, 1/4
[2] $I2am$ (46, $Ima2$)	(1; 4; 6; 7)+	c, b, -a	0, 0, 1/4
[2] $Iba2$ (45)	(1; 2; 7; 8)+		
[2] $I222$ (23)	(1; 2; 3; 4)+		0, 0, 1/4
[2] $I12/a1$ (15, $C12/c1$)	(1; 3; 5; 7)+	a - c, b, c	
[2] $I2/b11$ (15, $C12/c1$)	(1; 4; 5; 8)+	-b - c, a, c	
[2] $I112/m$ (12, $A112/m$)	(1; 2; 5; 6)+	b, -a - b, c	

II Maximal *klassengleiche* subgroups

• Loss of centring translations

[2] $Pcan$ (60, $Pbcn$)	1; 3; 5; 7; (2; 4; 6; 8) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$	-b, a, c	
[2] $Pbcn$ (60)	1; 4; 5; 8; (2; 3; 6; 7) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		
[2] $Pbcm$ (57)	1; 3; 6; 8; (2; 4; 5; 7) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		1/4, 1/4, 1/4
[2] $Pcam$ (57, $Pbcm$)	1; 4; 6; 7; (2; 3; 5; 8) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$	-b, a, c	1/4, 1/4, 1/4
[2] $Pccn$ (56)	1; 2; 3; 4; (5; 6; 7; 8) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		1/4, 1/4, 1/4
[2] $Pbam$ (55)	1; 2; 3; 4; 5; 6; 7; 8		
[2] $Pban$ (50)	1; 2; 7; 8; (3; 4; 5; 6) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		1/4, 1/4, 1/4
[2] $Pccm$ (49)	1; 2; 5; 6; (3; 4; 7; 8) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$		

• Enlarged unit cell

[3] a' = 3a			
$\left\{ \begin{array}{l} Ibam (72) \\ Ibam (72) \\ Ibam (72) \end{array} \right.$	$\langle 2; 5; 3 + (1, 0, 0) \rangle$ $\langle (2; 5) + (2, 0, 0); 3 + (3, 0, 0) \rangle$ $\langle (2; 5) + (4, 0, 0); 3 + (5, 0, 0) \rangle$	3a, b, c 3a, b, c 3a, b, c	1, 0, 0 2, 0, 0
[3] b' = 3b			
$\left\{ \begin{array}{l} Ibam (72) \\ Ibam (72) \\ Ibam (72) \end{array} \right.$	$\langle 2; 5; 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 2, 0); 3 + (0, 1, 0) \rangle$ $\langle (2; 5) + (0, 4, 0); 3 + (0, 1, 0) \rangle$	a, 3b, c a, 3b, c a, 3b, c	0, 1, 0 0, 2, 0
[3] c' = 3c			
$\left\{ \begin{array}{l} Ibam (72) \\ Ibam (72) \\ Ibam (72) \end{array} \right.$	$\langle 2; 3; 5 \rangle$ $\langle 2; (3; 5) + (0, 0, 2) \rangle$ $\langle 2; (3; 5) + (0, 0, 4) \rangle$	a, b, 3c a, b, 3c a, b, 3c	0, 0, 1 0, 0, 2

• Series of maximal isomorphic subgroups

[<i>p</i>] a' = pa			
$Ibam (72)$	$\langle (2; 5) + (2u, 0, 0); 3 + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ <i>p</i> conjugate subgroups	pa, b, c	<i>u</i> , 0, 0
[<i>p</i>] b' = pb			
$Ibam (72)$	$\langle (2; 5) + (0, 2u, 0); 3 + (0, \frac{p}{2} - \frac{1}{2}, 0) \rangle$ prime $p > 2$; $0 \leq u < p$ <i>p</i> conjugate subgroups	a, pb, c	0, <i>u</i> , 0
[<i>p</i>] c' = pc			
$Ibam (72)$	$\langle 2; (3; 5) + (0, 0, 2u) \rangle$ prime $p > 2$; $0 \leq u < p$ <i>p</i> conjugate subgroups	a, b, pc	0, 0, <i>u</i>

I Minimal *translationengleiche* supergroups

[2] $I4/mcm$ (140)

II Minimal non-isomorphic *klassengleiche* supergroups

• Additional centring translations

none

• Decreased unit cell

[2] $c' = \frac{1}{2}c$ $Cmmm$ (65); [2] $a' = \frac{1}{2}a$ $Aemm$ (67, $Cmme$); [2] $b' = \frac{1}{2}b$ $Bmem$ (67, $Cmme$)