

D_{2h}^{25}
 $I2/m2/m2/m$

No. 71

 $I m m m$
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 *o* 1

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

 (1) x,y,z (2) \bar{x},\bar{y},z (3) \bar{x},y,\bar{z} (4) x,\bar{y},\bar{z}
 (5) \bar{x},\bar{y},\bar{z} (6) x,y,\bar{z} (7) x,\bar{y},z (8) \bar{x},y,z
I Maximal translationengleiche subgroups

[2] $I m m 2$ (44)	(1; 2; 7; 8)+	
[2] $I m 2 m$ (44, $I m m 2$)	(1; 3; 6; 8)+	c, a, b
[2] $I 2 m m$ (44, $I m m 2$)	(1; 4; 6; 7)+	b, c, a
[2] $I 2 2 2$ (23)	(1; 2; 3; 4)+	
[2] $I 1 1 2/m$ (12, $A 1 1 2/m$)	(1; 2; 5; 6)+	b, -a - b, c
[2] $I 1 2/m 1$ (12, $C 1 2/m 1$)	(1; 3; 5; 7)+	-a - c, b, a
[2] $I 2/m 1 1$ (12, $C 1 2/m 1$)	(1; 4; 5; 8)+	-b + c, a, b

II Maximal klassengleiche subgroups

• Loss of centring translations

[2] $P m m n$ (59)	1; 2; 7; 8; (3; 4; 5; 6) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		1/4, 1/4, 1/4
[2] $P m m m$ (59, $P m m n$)	1; 3; 6; 8; (2; 4; 5; 7) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	c, a, b	1/4, 1/4, 1/4
[2] $P n m m$ (59, $P m m n$)	1; 4; 6; 7; (2; 3; 5; 8) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	b, c, a	1/4, 1/4, 1/4
[2] $P n n m$ (58)	1; 2; 5; 6; (3; 4; 7; 8) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		
[2] $P n m n$ (58, $P n n m$)	1; 3; 5; 7; (2; 4; 6; 8) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	c, a, b	
[2] $P m n n$ (58, $P n n m$)	1; 4; 5; 8; (2; 3; 6; 7) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	b, c, a	
[2] $P n n n$ (48)	1; 2; 3; 4; (5; 6; 7; 8) + $(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		1/4, 1/4, 1/4
[2] $P m m m$ (47)	1; 2; 3; 4; 5; 6; 7; 8		

• Enlarged unit cell

[3] $\mathbf{a}' = 3\mathbf{a}$			
$I m m m$ (71)	$\langle 2; 3; 5 \rangle$	3a, b, c	
$I m m m$ (71)	$\langle \langle 2; 3; 5 \rangle + (2, 0, 0) \rangle$	3a, b, c	1, 0, 0
$I m m m$ (71)	$\langle \langle 2; 3; 5 \rangle + (4, 0, 0) \rangle$	3a, b, c	2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$I m m m$ (71)	$\langle 2; 3; 5 \rangle$	a, 3b, c	
$I m m m$ (71)	$\langle 3; (2; 5) + (0, 2, 0) \rangle$	a, 3b, c	0, 1, 0
$I m m m$ (71)	$\langle 3; (2; 5) + (0, 4, 0) \rangle$	a, 3b, c	0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$I m m m$ (71)	$\langle 2; 3; 5 \rangle$	a, b, 3c	
$I m m m$ (71)	$\langle 2; (3; 5) + (0, 0, 2) \rangle$	a, b, 3c	0, 0, 1
$I m m m$ (71)	$\langle 2; (3; 5) + (0, 0, 4) \rangle$	a, b, 3c	0, 0, 2

• Series of maximal isomorphic subgroups

[p] $\mathbf{a}' = p\mathbf{a}$			
$I m m m$ (71)	$\langle \langle 2; 3; 5 \rangle + (2u, 0, 0) \rangle$	pa, b, c	$u, 0, 0$
	prime $p > 2$; $0 \leq u < p$		
	p conjugate subgroups		
[p] $\mathbf{b}' = p\mathbf{b}$			
$I m m m$ (71)	$\langle 3; (2; 5) + (0, 2u, 0) \rangle$	a, pb, c	$0, u, 0$
	prime $p > 2$; $0 \leq u < p$		
	p conjugate subgroups		
[p] $\mathbf{c}' = p\mathbf{c}$			
$I m m m$ (71)	$\langle 2; (3; 5) + (0, 0, 2u) \rangle$	a, b, pc	$0, 0, u$
	prime $p > 2$; $0 \leq u < p$		
	p conjugate subgroups		

I Minimal translationengleiche supergroups

 [2] $I 4/m m m$ (139); [3] $I m \bar{3}$ (204)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

none

• Decreased unit cell

 [2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $A m m m$ (65, $C m m m$); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $B m m m$ (65, $C m m m$); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $C m m m$ (65)