

D_{2h}^7
 $P2/m2/n2_1/a$

No. 53

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

I Maximal translationengleiche subgroups

[2] $Pmn2_1$ (31)	1; 2; 7; 8			
[2] $P2na$ (30, $Pnc2$)	1; 4; 6; 7		b, c, a	
[2] $Pm2a$ (28, $Pma2$)	1; 3; 6; 8		a, -c, b	1/4, 0, 1/4
[2] $P222_1$ (17)	1; 2; 3; 4			1/4, 0, 0
[2] $P112_1/a$ (14)	1; 2; 5; 6			
[2] $P12/n1$ (13, $P12/c1$)	1; 3; 5; 7		c, b, -a - c	
[2] $P2/m11$ (10, $P12/m1$)	1; 4; 5; 8		c, a, b	

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{b}' = 2\mathbf{b}$				
$Pbna$ (60, $Pbcn$)	$\langle 2; 5; 3 + (0, 1, 0) \rangle$		c, a, 2b	
$Pbna$ (60, $Pbcn$)	$\langle (2; 3; 5) + (0, 1, 0) \rangle$		c, a, 2b	0, 1/2, 0
$Pmnn$ (58, $Pnmm$)	$\langle 5; (2; 3) + (0, 1, 0) \rangle$		2b, c, a	
$Pmnn$ (58, $Pnmm$)	$\langle 2; (3; 5) + (0, 1, 0) \rangle$		2b, c, a	0, 1/2, 0
$Pmna$ (53)	$\langle 2; 3; 5 \rangle$		a, 2b, c	
$Pmna$ (53)	$\langle 3; (2; 5) + (0, 1, 0) \rangle$		a, 2b, c	0, 1/2, 0
$Pbnn$ (52, $Pnna$)	$\langle 3; 5; 2 + (0, 1, 0) \rangle$		2b, c, a	
$Pbnn$ (52, $Pnna$)	$\langle 2; 3; 5 + (0, 1, 0) \rangle$		2b, c, a	0, 1/2, 0
[3] $\mathbf{a}' = 3\mathbf{a}$				
$Pmna$ (53)	$\langle 5; (2; 3) + (1, 0, 0) \rangle$		3a, b, c	
$Pmna$ (53)	$\langle (2; 3) + (3, 0, 0); 5 + (2, 0, 0) \rangle$		3a, b, c	1, 0, 0
$Pmna$ (53)	$\langle (2; 3) + (5, 0, 0); 5 + (4, 0, 0) \rangle$		3a, b, c	2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$				
$Pmna$ (53)	$\langle 2; 3; 5 \rangle$		a, 3b, c	
$Pmna$ (53)	$\langle 3; (2; 5) + (0, 2, 0) \rangle$		a, 3b, c	0, 1, 0
$Pmna$ (53)	$\langle 3; (2; 5) + (0, 4, 0) \rangle$		a, 3b, c	0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$				
$Pmna$ (53)	$\langle 5; (2; 3) + (0, 0, 1) \rangle$		a, b, 3c	
$Pmna$ (53)	$\langle 2 + (0, 0, 1); 3 + (0, 0, 3); 5 + (0, 0, 2) \rangle$		a, b, 3c	0, 0, 1
$Pmna$ (53)	$\langle 2 + (0, 0, 1); 3 + (0, 0, 5); 5 + (0, 0, 4) \rangle$		a, b, 3c	0, 0, 2

• Series of maximal isomorphic subgroups

[<i>p</i>] $\mathbf{a}' = p\mathbf{a}$				
$Pmna$ (53)	$\langle (2; 3) + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0); 5 + (2u, 0, 0) \rangle$		pa, b, c	$u, 0, 0$
	prime $p > 2$; $0 \leq u < p$			
	p conjugate subgroups			
[<i>p</i>] $\mathbf{b}' = p\mathbf{b}$				
$Pmna$ (53)	$\langle 3; (2; 5) + (0, 2u, 0) \rangle$		a, pb, c	$0, u, 0$
	prime $p > 2$; $0 \leq u < p$			
	p conjugate subgroups			
[<i>p</i>] $\mathbf{c}' = p\mathbf{c}$				
$Pmna$ (53)	$\langle 2 + (0, 0, \frac{p}{2} - \frac{1}{2}); 3 + (0, 0, \frac{p}{2} - \frac{1}{2} + 2u); 5 + (0, 0, 2u) \rangle$		a, b, pc	$0, 0, u$
	prime $p > 2$; $0 \leq u < p$			
	p conjugate subgroups			

I Minimal translationengleiche supergroups

none

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $Cmce$ (64); [2] $Bmnm$ (65, $Cmmm$); [2] $Amaa$ (66, $Cccm$); [2] $Imma$ (74)

• Decreased unit cell

 [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $Pmaa$ (49, $Pccm$); [2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Pmcm$ (51, $Pmma$)