

D_{2h}^5
 $P2_1/m2/m2/a$

No. 51

 $Pmma$
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	l	1	(1) x, y, z	(2) $\bar{x} + \frac{1}{2}, \bar{y}, z$	(3) \bar{x}, y, \bar{z}	(4) $x + \frac{1}{2}, \bar{y}, \bar{z}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) $x + \frac{1}{2}, y, \bar{z}$	(7) x, \bar{y}, z	(8) $\bar{x} + \frac{1}{2}, y, z$

I Maximal translationengleiche subgroups

[2] $Pm2a$ (28, $Pma2$)	1; 3; 6; 8	a, -c, b	
[2] $P2_1ma$ (26, $Pmc2_1$)	1; 4; 6; 7	b, c, a	
[2] $Pmm2$ (25)	1; 2; 7; 8		1/4, 0, 0
[2] $P2_122$ (17, $P222_1$)	1; 2; 3; 4	b, c, a	
[2] $P112/a$ (13)	1; 2; 5; 6		
[2] $P2_1/m11$ (11, $P12_1/m1$)	1; 4; 5; 8	c, a, b	
[2] $P12/m1$ (10)	1; 3; 5; 7		

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $b' = 2b$			
Pmmn (59)	⟨5; (2; 3) + (0, 1, 0)⟩	a, 2b, c	
Pmmn (59)	⟨2; (3; 5) + (0, 1, 0)⟩	a, 2b, c	0, 1/2, 0
Pbma (57, $Pbcm$)	⟨2; 5; 3 + (0, 1, 0)⟩	c, a, 2b	
Pbma (57, $Pbcm$)	⟨(2; 3; 5) + (0, 1, 0)⟩	c, a, 2b	0, 1/2, 0
Pbmn (53, $Pmna$)	⟨3; 5; 2 + (0, 1, 0)⟩	2b, c, a	
Pbmn (53, $Pmna$)	⟨2; 3; 5 + (0, 1, 0)⟩	2b, c, a	0, 1/2, 0
Pmma (51)	⟨2; 3; 5⟩	a, 2b, c	
Pmma (51)	⟨3; (2; 5) + (0, 1, 0)⟩	a, 2b, c	0, 1/2, 0
[2] $c' = 2c$			
Pmca (57, $Pbcm$)	⟨5; (2; 3) + (0, 0, 1)⟩	b, 2c, a	
Pmca (57, $Pbcm$)	⟨3; (2; 5) + (0, 0, 1)⟩	b, 2c, a	0, 0, 1/2
Pcma (55, $Pbam$)	⟨3; 5; 2 + (0, 0, 1)⟩	2c, a, b	
Pcma (55, $Pbam$)	⟨(2; 3; 5) + (0, 0, 1)⟩	2c, a, b	0, 0, 1/2
Pcca (54)	⟨2; 5; 3 + (0, 0, 1)⟩	a, b, 2c	
Pcca (54)	⟨2; 3; 5 + (0, 0, 1)⟩	a, b, 2c	0, 0, 1/2
Pmma (51)	⟨2; 3; 5⟩	a, b, 2c	
Pmma (51)	⟨2; (3; 5) + (0, 0, 1)⟩	a, b, 2c	0, 0, 1/2
[2] $b' = 2b, c' = 2c$			
Aema (64, $Cmce$)	⟨3; 5; 2 + (0, 0, 1)⟩	2b, 2c, a	
Aema (64, $Cmce$)	⟨(2; 3; 5) + (0, 0, 1)⟩	2b, 2c, a	0, 0, 1/2
Aema (64, $Cmce$)	⟨2; 5; 3 + (0, 0, 1)⟩	2b, 2c, a	0, 1/2, 1/2
Aema (64, $Cmce$)	⟨2; 3; 5 + (0, 0, 1)⟩	2b, 2c, a	0, 1/2, 0
Amma (63, $Cmcm$)	⟨2; 3; 5⟩	2b, 2c, a	
Amma (63, $Cmcm$)	⟨2; (3; 5) + (0, 0, 1)⟩	2b, 2c, a	0, 0, 1/2
Amma (63, $Cmcm$)	⟨5; (2; 3) + (0, 0, 1)⟩	2b, 2c, a	0, 1/2, 1/2
Amma (63, $Cmcm$)	⟨3; (2; 5) + (0, 0, 1)⟩	2b, 2c, a	0, 1/2, 0
[3] $a' = 3a$			
Pmma (51)	⟨3; 5; 2 + (1, 0, 0)⟩	3a, b, c	
Pmma (51)	⟨2 + (3, 0, 0); (3; 5) + (2, 0, 0)⟩	3a, b, c	1, 0, 0
Pmma (51)	⟨2 + (5, 0, 0); (3; 5) + (4, 0, 0)⟩	3a, b, c	2, 0, 0
[3] $b' = 3b$			
Pmma (51)	⟨2; 3; 5⟩	a, 3b, c	
Pmma (51)	⟨3; (2; 5) + (0, 2, 0)⟩	a, 3b, c	0, 1, 0
Pmma (51)	⟨3; (2; 5) + (0, 4, 0)⟩	a, 3b, c	0, 2, 0
[3] $c' = 3c$			
Pmma (51)	⟨2; 3; 5⟩	a, b, 3c	
Pmma (51)	⟨2; (3; 5) + (0, 0, 2)⟩	a, b, 3c	0, 0, 1
Pmma (51)	⟨2; (3; 5) + (0, 0, 4)⟩	a, b, 3c	0, 0, 2

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I Minimal translationengleiche supergroups

[2] $P4/nbm$ (125); [2] $P4_2/nbc$ (133)

II Minimal non-isomorphic klassengleiche supergroups

• **Additional centring translations**

[2] $Cmmm$ (65); [2] $Aeaa$ (68, $Ccce$); [2] $Bbeb$ (68, $Ccce$); [2] $Ibam$ (72)

• **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Pbmb$ (49, $Pccm$); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $Pmaa$ (49, $Pccm$)

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• **Series of maximal isomorphic subgroups**

<p>[p] $\mathbf{a}' = p\mathbf{a}$ $Pmma$ (51)</p>	<p>$\langle 2 + (\frac{p}{2} - \frac{1}{2} + 2u, 0, 0); (3; 5) + (2u, 0, 0) \rangle$ prime $p > 2; 0 \leq u < p$ p conjugate subgroups</p>	<p>$p\mathbf{a}, \mathbf{b}, \mathbf{c}$</p>	<p>$u, 0, 0$</p>
<p>[p] $\mathbf{b}' = p\mathbf{b}$ $Pmma$ (51)</p>	<p>$\langle 3; (2; 5) + (0, 2u, 0) \rangle$ prime $p > 2; 0 \leq u < p$ p conjugate subgroups</p>	<p>$\mathbf{a}, p\mathbf{b}, \mathbf{c}$</p>	<p>$0, u, 0$</p>
<p>[p] $\mathbf{c}' = p\mathbf{c}$ $Pmma$ (51)</p>	<p>$\langle 2; (3; 5) + (0, 0, 2u) \rangle$ prime $p > 2; 0 \leq u < p$ p conjugate subgroups</p>	<p>$\mathbf{a}, \mathbf{b}, p\mathbf{c}$</p>	<p>$0, 0, u$</p>

I Minimal translationengleiche supergroups

none

II Minimal non-isomorphic klassengleiche supergroups

• **Additional centring translations**

[2] $Amma$ (63, $Cmcm$); [2] $Bmmm$ (65, $Cmmm$); [2] $Cmme$ (67); [2] $Imma$ (74)

• **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $Pmmm$ (47)