

C_{2v}^1
 $Pmm2$

No. 25

 $Pmm2$
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3)

General position

 Multiplicity,
 Wyckoff letter,
 Site symmetry

Coordinates

 4 i 1 (1) x, y, z (2) \bar{x}, \bar{y}, z (3) x, \bar{y}, z (4) \bar{x}, y, z
I Maximal translationengleiche subgroups

[2] $P1m1$ (6)	1; 3	
[2] $Pm11$ (6, $P1m1$)	1; 4	c, a, b
[2] $P112$ (3)	1; 2	

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{a}' = 2\mathbf{a}$			
$Pma2$ (28)	$\langle 2; 3 + (1, 0, 0) \rangle$	2a, b, c	
$Pma2$ (28)	$\langle (2; 3) + (1, 0, 0) \rangle$	2a, b, c	1/2, 0, 0
$Pmm2$ (25)	$\langle 2; 3 \rangle$	2a, b, c	
$Pmm2$ (25)	$\langle 3; 2 + (1, 0, 0) \rangle$	2a, b, c	1/2, 0, 0
[2] $\mathbf{b}' = 2\mathbf{b}$			
$Pbm2$ (28, $Pma2$)	$\langle 2; 3 + (0, 1, 0) \rangle$	-2b, a, c	
$Pbm2$ (28, $Pma2$)	$\langle 3; 2 + (0, 1, 0) \rangle$	-2b, a, c	0, 1/2, 0
$Pmm2$ (25)	$\langle 2; 3 \rangle$	a, 2b, c	
$Pmm2$ (25)	$\langle (2; 3) + (0, 1, 0) \rangle$	a, 2b, c	0, 1/2, 0
[2] $\mathbf{c}' = 2\mathbf{c}$			
$Pcc2$ (27)	$\langle 2; 3 + (0, 0, 1) \rangle$	a, b, 2c	
$Pmc2_1$ (26)	$\langle (2; 3) + (0, 0, 1) \rangle$	a, b, 2c	
$Pcm2_1$ (26, $Pmc2_1$)	$\langle 3; 2 + (0, 0, 1) \rangle$	-b, a, 2c	
$Pmm2$ (25)	$\langle 2; 3 \rangle$	a, b, 2c	
[2] $\mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$			
$Aem2$ (39)	$\langle 2; 3 + (0, 1, 0) \rangle$	a, 2b, 2c	
$Aem2$ (39)	$\langle 3; 2 + (0, 1, 0) \rangle$	a, 2b, 2c	0, 1/2, 0
$Amm2$ (38)	$\langle 2; 3 \rangle$	a, 2b, 2c	
$Amm2$ (38)	$\langle (2; 3) + (0, 1, 0) \rangle$	a, 2b, 2c	0, 1/2, 0
[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{c}' = 2\mathbf{c}$			
$Bme2$ (39, $Aem2$)	$\langle 2; 3 + (1, 0, 0) \rangle$	-b, 2a, 2c	
$Bme2$ (39, $Aem2$)	$\langle (2; 3) + (1, 0, 0) \rangle$	-b, 2a, 2c	1/2, 0, 0
$Bmm2$ (38, $Amm2$)	$\langle 2; 3 \rangle$	-b, 2a, 2c	
$Bmm2$ (38, $Amm2$)	$\langle 3; 2 + (1, 0, 0) \rangle$	-b, 2a, 2c	1/2, 0, 0
[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$			
$Cmm2$ (35)	$\langle 2; 3 \rangle$	2a, 2b, c	
$Cmm2$ (35)	$\langle 3; 2 + (1, 0, 0) \rangle$	2a, 2b, c	1/2, 0, 0
$Cmm2$ (35)	$\langle (2; 3) + (0, 1, 0) \rangle$	2a, 2b, c	0, 1/2, 0
$Cmm2$ (35)	$\langle 2 + (1, 1, 0); 3 + (0, 1, 0) \rangle$	2a, 2b, c	1/2, 1/2, 0
[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$			
$Fmm2$ (42)	$\langle 2; 3 \rangle$	2a, 2b, 2c	
$Fmm2$ (42)	$\langle 3; 2 + (1, 0, 0) \rangle$	2a, 2b, 2c	1/2, 0, 0
$Fmm2$ (42)	$\langle (2; 3) + (0, 1, 0) \rangle$	2a, 2b, 2c	0, 1/2, 0
$Fmm2$ (42)	$\langle 2 + (1, 1, 0); 3 + (0, 1, 0) \rangle$	2a, 2b, 2c	1/2, 1/2, 0
[3] $\mathbf{a}' = 3\mathbf{a}$			
$Pmm2$ (25)	$\langle 2; 3 \rangle$	3a, b, c	
$Pmm2$ (25)	$\langle 3; 2 + (2, 0, 0) \rangle$	3a, b, c	1, 0, 0
$Pmm2$ (25)	$\langle 3; 2 + (4, 0, 0) \rangle$	3a, b, c	2, 0, 0
[3] $\mathbf{b}' = 3\mathbf{b}$			
$Pmm2$ (25)	$\langle 2; 3 \rangle$	a, 3b, c	
$Pmm2$ (25)	$\langle (2; 3) + (0, 2, 0) \rangle$	a, 3b, c	0, 1, 0
$Pmm2$ (25)	$\langle (2; 3) + (0, 4, 0) \rangle$	a, 3b, c	0, 2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$Pmm2$ (25)	$\langle 2; 3 \rangle$	a, b, 3c	

• **Series of maximal isomorphic subgroups**

<p>[p] $\mathbf{a}' = pa$ $Pmm2$ (25)</p>	<p>$\langle 3; 2 + (2u, 0, 0) \rangle$ prime $p > 2; 0 \leq u < p$ p conjugate subgroups</p>	<p>$pa, \mathbf{b}, \mathbf{c}$</p>	<p>$u, 0, 0$</p>
<p>[p] $\mathbf{b}' = pb$ $Pmm2$ (25)</p>	<p>$\langle (2; 3) + (0, 2u, 0) \rangle$ 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] $\mathbf{c}' = pc$ $Pmm2$ (25)</p>	<p>$\langle 2; 3 \rangle$ p prime no conjugate subgroups</p>	<p>$\mathbf{a}, \mathbf{b}, p\mathbf{c}$</p>	

I Minimal translationengleiche supergroups

[2] $Pmmm$ (47); [2] $Pmma$ (51); [2] $Pmnn$ (59); [2] $P4mm$ (99); [2] $P4_2mc$ (105); [2] $P\bar{4}m2$ (115)

II Minimal non-isomorphic klassengleiche supergroups

• **Additional centring translations**

[2] $Cmm2$ (35); [2] $Amm2$ (38); [2] $Bmm2$ (38, $Amm2$); [2] $Imm2$ (44)

• **Decreased unit cell**

none