$P2_1/c$ No. 14 $P12_1/c1$ C_{2h}^5

UNIQUE AXIS b, CELL CHOICE 1

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	e 1	(1) x,y,z (2) $\bar{x},y+\frac{1}{2},\bar{z}+\frac{1}{2}$ (3) $\bar{x},\bar{y},\bar{z}$ (4) $x,\bar{y}+\frac{1}{2},z+\frac{1}{2}$

I Maximal *translationengleiche* subgroups

[2] $P1c1$ (7)	1; 4	$0,1/4,0$
[2] $P12_11$ (4)	1; 2	$0,0,1/4$
[2] $P\bar{1}$ (2)	1; 3	

II Maximal *klassengleiche* subgroups

- **Enlarged unit cell**

[2] $\mathbf{a}'=2\mathbf{a}$			
$P12_1/c1$ (14)	$\langle 2;\ 3\rangle$	$2\mathbf{a},\mathbf{b},\mathbf{c}$	
$P12_1/c1$ (14)	$\langle (2;\ 3)+(1,0,0)\rangle$	$2\mathbf{a},\mathbf{b},\mathbf{c}$	$1/2,0,0$
$P12_1/n1$ (14, $P12_1/c1$)	$\langle 3;\ 2+(1,0,0)\rangle$	$2\mathbf{a},\mathbf{b},-2\mathbf{a}+\mathbf{c}$	
$P12_1/n1$ (14, $P12_1/c1$)	$\langle 2+(2,0,0);\ 3+(1,0,0)\rangle$	$2\mathbf{a},\mathbf{b},-2\mathbf{a}+\mathbf{c}$	$1/2,0,0$
[3] $\mathbf{b}'=3\mathbf{b}$			
$P12_1/c1$ (14)	$\langle 3;\ 2+(0,1,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	
$P12_1/c1$ (14)	$\langle 2+(0,1,0);\ 3+(0,2,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,1,0$
$P12_1/c1$ (14)	$\langle 2+(0,1,0);\ 3+(0,4,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,2,0$
[3] $\mathbf{c}'=3\mathbf{c}$			
$P12_1/c1$ (14)	$\langle 3;\ 2+(0,0,1)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	
$P12_1/c1$ (14)	$\langle 2+(0,0,3);\ 3+(0,0,2)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,1$
$P12_1/c1$ (14)	$\langle 2+(0,0,5);\ 3+(0,0,4)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,2$
[3] $\mathbf{a}'=3\mathbf{a}$			
$P12_1/c1$ (14)	$\langle 2;\ 3\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	
$P12_1/c1$ (14)	$\langle (2;\ 3)+(2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$1,0,0$
$P12_1/c1$ (14)	$\langle (2;\ 3)+(4,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$2,0,0$
[3] $\mathbf{a}'=3\mathbf{a},\ \mathbf{c}'=-2\mathbf{a}+\mathbf{c}$			
$P12_1/c1$ (14)	$\langle 3;\ 2+(-1,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-2\mathbf{a}+\mathbf{c}$	
$P12_1/c1$ (14)	$\langle 2+(1,0,0);\ 3+(2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-2\mathbf{a}+\mathbf{c}$	$1,0,0$
$P12_1/c1$ (14)	$\langle 2+(3,0,0);\ 3+(4,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-2\mathbf{a}+\mathbf{c}$	$2,0,0$
[3] $\mathbf{a}'=3\mathbf{a},\ \mathbf{c}'=-4\mathbf{a}+\mathbf{c}$			
$P12_1/c1$ (14)	$\langle 3;\ 2+(-2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-4\mathbf{a}+\mathbf{c}$	
$P12_1/c1$ (14)	$\langle 2+(0,0,0);\ 3+(2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-4\mathbf{a}+\mathbf{c}$	$1,0,0$
$P12_1/c1$ (14)	$\langle 2+(2,0,0);\ 3+(4,0,0)\rangle$	$3\mathbf{a},\mathbf{b},-4\mathbf{a}+\mathbf{c}$	$2,0,0$

- **Series of maximal isomorphic subgroups**

[p] $\mathbf{b}'=p\mathbf{b}$			
$P12_1/c1$ (14)	$\langle 2+(0,\frac{p}{2}-\frac{1}{2},0);\ 3+(0,2u,0)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$\mathbf{a},p\mathbf{b},\mathbf{c}$	$0,u,0$
[p] $\mathbf{c}'=p\mathbf{c}$			
$P12_1/c1$ (14)	$\langle 2+(0,0,\frac{p}{2}-\frac{1}{2}+2u);\ 3+(0,0,2u)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$0,0,u$
[p] $\mathbf{a}'=p\mathbf{a},\ \mathbf{c}'=-2q\mathbf{a}+\mathbf{c}$			
$P12_1/c1$ (14)	$\langle 2+(-q+2u,0,0);\ 3+(2u,0,0)\rangle$ prime $p>2$; $0\le q<p$; $0\le u<p$ p conjugate subgroups for each pair of q and p	$p\mathbf{a},\mathbf{b},-2q\mathbf{a}+\mathbf{c}$	$u,0,0$

I Minimal *translationengleiche* supergroups

[2] *Pnna* (52); [2] *Pmna* (53); [2] *Pcca* (54); [2] *Pbam* (55); [2] *Pccn* (56); [2] *Pbcm* (57); [2] *Pnnm* (58); [2] *Pbcn* (60); [2] *Pbca* (61); [2] *Pnma* (62); [2] *Cmce* (64)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $A12/m1$ (12, $C12/m1$); [2] $C12/c1$ (15); [2] $I12/c1$ (15, $C12/c1$)

- **Decreased unit cell**

[2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P12_1/m1$ (11); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $P12/c1$ (13)

(*Continued from the following page*) No. 14 UNIQUE AXIS c $P2_1/c$

I Minimal *translationengleiche* supergroups

[2] *Pnna* (52); [2] *Pmna* (53); [2] *Pcca* (54); [2] *Pbam* (55); [2] *Pccn* (56); [2] *Pbcm* (57); [2] *Pnnm* (58); [2] *Pbcn* (60); [2] *Pbca* (61); [2] *Pnma* (62); [2] *Cmce* (64)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $A112/a$ (15); [2] $B112/m$ (12, $A112/m$); [2] $I112/a$ (15, $A112/a$)

- **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $P112_1/m$ (11); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P112/a$ (13)

UNIQUE AXIS c, CELL CHOICE 1

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 e 1		(1) x,y,z (2) $\bar{x}+\frac{1}{2},\bar{y},z+\frac{1}{2}$ (3) $\bar{x},\bar{y},\bar{z}$ (4) $x+\frac{1}{2},y,\bar{z}+\frac{1}{2}$

I Maximal *translationengleiche* subgroups

[2] $P11a$ (7)	1; 4	$0,0,1/4$
[2] $P112_1$ (4)	1; 2	$1/4,0,0$
[2] $P\bar{1}$ (2)	1; 3	

II Maximal *klassengleiche* subgroups

- **Enlarged unit cell**

[2] $\mathbf{b}'=2\mathbf{b}$

$P112_1/a$ (14)	$\langle 2;\ 3\rangle$	$\mathbf{a},2\mathbf{b},\mathbf{c}$	
$P112_1/a$ (14)	$\langle (2;\ 3)+(0,1,0)\rangle$	$\mathbf{a},2\mathbf{b},\mathbf{c}$	$0,1/2,0$
$P112_1/n$ (14, $P112_1/a$)	$\langle 3;\ 2+(0,1,0)\rangle$	$\mathbf{a}-2\mathbf{b},2\mathbf{b},\mathbf{c}$	
$P112_1/n$ (14, $P112_1/a$)	$\langle 2+(0,2,0);\ 3+(0,1,0)\rangle$	$\mathbf{a}-2\mathbf{b},2\mathbf{b},\mathbf{c}$	$0,1/2,0$

[3] $\mathbf{c}'=3\mathbf{c}$

$P112_1/a$ (14)	$\langle 3;\ 2+(0,0,1)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	
$P112_1/a$ (14)	$\langle 2+(0,0,1);\ 3+(0,0,2)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,1$
$P112_1/a$ (14)	$\langle 2+(0,0,1);\ 3+(0,0,4)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,2$

[3] $\mathbf{a}'=3\mathbf{a}$

$P112_1/a$ (14)	$\langle 3;\ 2+(1,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	
$P112_1/a$ (14)	$\langle 2+(3,0,0);\ 3+(2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$1,0,0$
$P112_1/a$ (14)	$\langle 2+(5,0,0);\ 3+(4,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$2,0,0$

[3] $\mathbf{b}'=3\mathbf{b}$

$P112_1/a$ (14)	$\langle 2;\ 3\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	
$P112_1/a$ (14)	$\langle (2;\ 3)+(0,2,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,1,0$
$P112_1/a$ (14)	$\langle (2;\ 3)+(0,4,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,2,0$

[3] $\mathbf{a}'=\mathbf{a}-2\mathbf{b},\ \mathbf{b}'=3\mathbf{b}$

$P112_1/a$ (14)	$\langle 3;\ 2+(0,-1,0)\rangle$	$\mathbf{a}-2\mathbf{b},3\mathbf{b},\mathbf{c}$	
$P112_1/a$ (14)	$\langle 2+(0,1,0);\ 3+(0,2,0)\rangle$	$\mathbf{a}-2\mathbf{b},3\mathbf{b},\mathbf{c}$	$0,1,0$
$P112_1/a$ (14)	$\langle 2+(0,3,0);\ 3+(0,4,0)\rangle$	$\mathbf{a}-2\mathbf{b},3\mathbf{b},\mathbf{c}$	$0,2,0$

[3] $\mathbf{a}'=\mathbf{a}-4\mathbf{b},\ \mathbf{b}'=3\mathbf{b}$

$P112_1/a$ (14)	$\langle 3;\ 2+(0,-2,0)\rangle$	$\mathbf{a}-4\mathbf{b},3\mathbf{b},\mathbf{c}$	
$P112_1/a$ (14)	$\langle 2+(0,0,0);\ 3+(0,2,0)\rangle$	$\mathbf{a}-4\mathbf{b},3\mathbf{b},\mathbf{c}$	$0,1,0$
$P112_1/a$ (14)	$\langle 2+(0,2,0);\ 3+(0,4,0)\rangle$	$\mathbf{a}-4\mathbf{b},3\mathbf{b},\mathbf{c}$	$0,2,0$

- **Series of maximal isomorphic subgroups**

[p] $\mathbf{c}'=p\mathbf{c}$

$P112_1/a$ (14)	$\langle 2+(0,0,\frac{p}{2}-\frac{1}{2});\ 3+(0,0,2u)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$0,0,u$

[p] $\mathbf{a}'=p\mathbf{a}$

$P112_1/a$ (14)	$\langle 2+(\frac{p}{2}-\frac{1}{2}+2u,0,0);\ 3+(2u,0,0)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$p\mathbf{a},\mathbf{b},\mathbf{c}$	$u,0,0$

[p] $\mathbf{a}'=\mathbf{a}-2q\mathbf{b},\ \mathbf{b}'=p\mathbf{b}$

$P112_1/a$ (14)	$\langle 2+(0,-q+2u,0);\ 3+(0,2u,0)\rangle$ prime $p>2$; $0\le q<p$; $0\le u<p$ p conjugate subgroups for each pair of q and p	$\mathbf{a}-2q\mathbf{b},p\mathbf{b},\mathbf{c}$	$0,u,0$

(*Continued on the preceding page*)

I Minimal *translationengleiche* supergroups

[2] *Pnna* (52); [2] *Pmna* (53); [2] *Pcca* (54); [2] *Pbam* (55); [2] *Pccn* (56); [2] *Pbcm* (57); [2] *Pnnm* (58); [2] *Pbcn* (60); [2] *Pbca* (61); [2] *Pnma* (62); [2] *Cmce* (64)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $A12/m1$ (12, $C12/m1$); [2] $C12/c1$ (15); [2] $I12/c1$ (15, $C12/c1$)

- **Decreased unit cell**

[2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P12_1/m1$ (11); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ $P12/c1$ (13)

(*Continued from the following page*) No. 14 UNIQUE AXIS c $P2_1/c$

I Minimal *translationengleiche* supergroups

[2] *Pnna* (52); [2] *Pmna* (53); [2] *Pcca* (54); [2] *Pbam* (55); [2] *Pccn* (56); [2] *Pbcm* (57); [2] *Pnnm* (58); [2] *Pbcn* (60); [2] *Pbca* (61); [2] *Pnma* (62); [2] *Cmce* (64)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $A112/a$ (15); [2] $B112/m$ (12, $A112/m$); [2] $I112/a$ (15, $A112/a$)

- **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $P112_1/m$ (11); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P112/a$ (13)