C_{2v}^{10} $Pnn2$ No. 34 $Pnn2$

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

I Maximal *translationengleiche* subgroups

[2] $P1n1$ (7, $P1c1$)	1; 3	$\mathbf{c},\mathbf{b},-\mathbf{a}-\mathbf{c}$	$0,1/4,0$
[2] $Pn11$ (7, $P1c1$)	1; 4	$\mathbf{b},\mathbf{a},-\mathbf{b}-\mathbf{c}$	$1/4,0,0$
[2] $P112$ (3)	1; 2		

II Maximal *klassengleiche* subgroups

- **Enlarged unit cell**

[2] $\mathbf{a}'=2\mathbf{a}$, $\mathbf{b}'=2\mathbf{b}$, $\mathbf{c}'=2\mathbf{c}$			
$Fdd2$ (43)	$\langle 2;\ 3\rangle$	$2\mathbf{a},2\mathbf{b},2\mathbf{c}$	
$Fdd2$ (43)	$\langle 3;\ 2+(1,0,0)\rangle$	$2\mathbf{a},2\mathbf{b},2\mathbf{c}$	$1/2,0,0$
$Fdd2$ (43)	$\langle (2;\ 3)+(0,1,0)\rangle$	$2\mathbf{a},2\mathbf{b},2\mathbf{c}$	$0,1/2,0$
$Fdd2$ (43)	$\langle 2+(1,1,0);\ 3+(0,1,0)\rangle$	$2\mathbf{a},2\mathbf{b},2\mathbf{c}$	$1/2,1/2,0$
[3] $\mathbf{a}'=3\mathbf{a}$			
$Pnn2$ (34)	$\langle 2;\ 3+(1,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	
$Pnn2$ (34)	$\langle 2+(2,0,0);\ 3+(1,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$1,0,0$
$Pnn2$ (34)	$\langle 2+(4,0,0);\ 3+(1,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$2,0,0$
[3] $\mathbf{b}'=3\mathbf{b}$			
$Pnn2$ (34)	$\langle 2;\ 3+(0,1,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	
$Pnn2$ (34)	$\langle 2+(0,2,0);\ 3+(0,3,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,1,0$
$Pnn2$ (34)	$\langle 2+(0,4,0);\ 3+(0,5,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,2,0$
[3] $\mathbf{c}'=3\mathbf{c}$			
$Pnn2$ (34)	$\langle 2;\ 3+(0,0,1)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	

- **Series of maximal isomorphic subgroups**

[p] $\mathbf{a}'=p\mathbf{a}$			
$Pnn2$ (34)	$\langle 2+(2u,0,0);\ 3+(\frac{p}{2}-\frac{1}{2},0,0)\rangle$ $p>2;\ 0\le u<p$ p conjugate subgroups for the prime p	$p\mathbf{a},\mathbf{b},\mathbf{c}$	$u,0,0$
[p] $\mathbf{b}'=p\mathbf{b}$			
$Pnn2$ (34)	$\langle 2+(0,2u,0);\ 3+(0,\frac{p}{2}-\frac{1}{2}+2u,0)\rangle$ $p>2;\ 0\le u<p$ p conjugate subgroups for the prime p	$\mathbf{a},p\mathbf{b},\mathbf{c}$	$0,u,0$
[p] $\mathbf{c}'=p\mathbf{c}$			
$Pnn2$ (34)	$\langle 2;\ 3+(0,0,\frac{p}{2}-\frac{1}{2})\rangle$ $p>2$ no conjugate subgroups	$\mathbf{a},\mathbf{b},p\mathbf{c}$	

I Minimal *translationengleiche* supergroups

[2] $Pnnn$ (48); [2] $Pnna$ (52); [2] $Pnnm$ (58); [2] $P4_2nm$ (102); [2] $P4nc$ (104); [2] $P\bar{4}n2$ (118)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $Ccc2$ (37); [2] $Ama2$ (40); [2] $Bbm2$ (40, $Ama2$); [2] $Imm2$ (44)

- **Decreased unit cell**

[2] $\mathbf{a}'=\frac{1}{2}\mathbf{a}$ $Pnc2$ (30); [2] $\mathbf{b}'=\frac{1}{2}\mathbf{b}$ $Pcn2$ (30, $Pnc2$); [2] $\mathbf{c}'=\frac{1}{2}\mathbf{c}$ $Pba2$ (32)