D_{2h}^{28} $I2_1/m2_1/m2_1/a$ No. 74 $Imma$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2},\frac{1}{2},\frac{1}{2})$; (2); (3); (5)

General position

Multiplicity, Wyckoff letter, Site symmetry	Coordinates $(0,0,0)+$ $(\frac{1}{2},\frac{1}{2},\frac{1}{2})+$			
16 j 1	(1) x,y,z	(2) $\bar{x},\bar{y}+\frac{1}{2},z$	(3) $\bar{x},y+\frac{1}{2},\bar{z}$	(4) $x,\bar{y},\bar{z}$
	(5) $\bar{x},\bar{y},\bar{z}$	(6) $x,y+\frac{1}{2},\bar{z}$	(7) $x,\bar{y}+\frac{1}{2},z$	(8) $\bar{x},y,z$

I Maximal *translationengleiche* subgroups

[2] $Im2b$ (46, $Ima2$)	(1; 3; 6; 8)+	$-\mathbf{a},\mathbf{c},\mathbf{b}$	$1/4,0,1/4$
[2] $I2mb$ (46, $Ima2$)	(1; 4; 6; 7)+	$\mathbf{b},\mathbf{c},\mathbf{a}$	
[2] $Imm2$ (44)	(1; 2; 7; 8)+		$0,1/4,0$
[2] $I2_12_12_1$ (24)	(1; 2; 3; 4)+		$0,0,1/4$
[2] $I112/b$ (15, $A112/a$)	(1; 2; 5; 6)+	$\mathbf{b},-\mathbf{a}-\mathbf{b},\mathbf{c}$	
[2] $I12/m1$ (12, $C12/m1$)	(1; 3; 5; 7)+	$-\mathbf{a}-\mathbf{c},\mathbf{b},\mathbf{a}$	$1/4,1/4,1/4$
[2] $I2/m11$ (12, $C12/m1$)	(1; 4; 5; 8)+	$-\mathbf{b}-\mathbf{c},\mathbf{a},\mathbf{c}$	

II Maximal *klassengleiche* subgroups

• Loss of centring translations

[2] $Pnma$ (62)	$1;3;5;7;(2;4;6;8)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		
[2] $Pmnb$ (62, $Pnma$)	$1;3;6;8;(2;4;5;7)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	$-\mathbf{b},\mathbf{a},\mathbf{c}$	$1/4,1/4,1/4$
[2] $Pnmb$ (53, $Pmna$)	$1;4;6;7;(2;3;5;8)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	$-\mathbf{b},\mathbf{a},\mathbf{c}$	$1/4,1/4,1/4$
[2] $Pmna$ (53)	$1;4;5;8;(2;3;6;7)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		
[2] $Pnna$ (52)	$1;2;3;4;(5;6;7;8)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		$1/4,1/4,1/4$
[2] $Pnnb$ (52, $Pnna$)	$1;2;5;6;(3;4;7;8)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$	$-\mathbf{b},\mathbf{a},\mathbf{c}$	
[2] $Pmma$ (51)	$1;2;7;8;(3;4;5;6)+(\frac{1}{2},\frac{1}{2},\frac{1}{2})$		$1/4,1/4,1/4$
[2] $Pmmb$ (51, $Pmma$)	1; 2; 3; 4; 5; 6; 7; 8	$-\mathbf{b},\mathbf{a},\mathbf{c}$	

• Enlarged unit cell

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

$Imma$ (74)	$\langle 2;3;5\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	
$Imma$ (74)	$\langle(2;3;5)+(2,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$1,0,0$
$Imma$ (74)	$\langle(2;3;5)+(4,0,0)\rangle$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$2,0,0$

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

$Imma$ (74)	$\langle 5;(2;3)+(0,1,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	
$Imma$ (74)	$\langle 2+(0,3,0);3+(0,1,0);5+(0,2,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,1,0$
$Imma$ (74)	$\langle 2+(0,5,0);3+(0,1,0);5+(0,4,0)\rangle$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$0,2,0$

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

$Imma$ (74)	$\langle 2;3;5\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	
$Imma$ (74)	$\langle 2;(3;5)+(0,0,2)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,1$
$Imma$ (74)	$\langle 2;(3;5)+(0,0,4)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,2$

• Series of maximal isomorphic subgroups

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

$Imma$ (74)	$\langle(2;3;5)+(2u,0,0)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$p\mathbf{a},\mathbf{b},\mathbf{c}$	$u,0,0$

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

$Imma$ (74)	$\langle 2+(0,\frac{p}{2}-\frac{1}{2}+2u,0);3+(0,\frac{p}{2}-\frac{1}{2},0);$ $5+(0,2u,0)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$\mathbf{a},p\mathbf{b},\mathbf{c}$	$0,u,0$

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

$Imma$ (74)	$\langle 2;(3;5)+(0,0,2u)\rangle$ prime $p>2$; $0\le u<p$ p conjugate subgroups	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$0,0,u$

(*Continued on the facing page*)

I Minimal *translationengleiche* supergroups

[2] $I4_1/acd$ (142); [3] $Ia\bar{3}$ (206)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations** none
- **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ *Aemm* (67, *Cmme*); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ *Bmem* (67, *Cmme*); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ *Cmme* (67)

Imma No. 74

(*Continued from the facing page*)

I Minimal *translationengleiche* supergroups

[2] $I4_1/amd$ (141)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations** none
- **Decreased unit cell**

[2] $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ *Ammm* (65, *Cmmm*); [2] $\mathbf{b}' = \frac{1}{2}\mathbf{b}$ *Bmmm* (65, *Cmmm*); [2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ *Cmme* (67)