Cm No. 8 $A11m$ C_s^3

UNIQUE AXIS c, CELL CHOICE 1

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

General position

Multiplicity, Wyckoff letter, Site symmetry	Coordinates $(0,0,0)+$	$(0,\frac{1}{2},\frac{1}{2})+$
4 b 1	(1) x,y,z	(2) $x,y,\bar{z}$

I Maximal *translationengleiche* subgroups

[2] $A1$ (1, $P1$)	$1+$	$\mathbf{a}, 1/2(\mathbf{b}-\mathbf{c}), 1/2(\mathbf{b}+\mathbf{c})$

II Maximal *klassengleiche* subgroups

- **Loss of centring translations**

[2] $P11b$ (7, $P11a$)	$1;\ 2+(0,\frac{1}{2},\frac{1}{2})$	$\mathbf{b}, -\mathbf{a}-\mathbf{b}, \mathbf{c}$	$0,0,1/4$
[2] $P11m$ (6)	$1;\ 2$		

- **Enlarged unit cell**

[2] $\mathbf{a}'=2\mathbf{a}$			
$A11a$ (9)	$\langle 2+(1,0,0)\rangle$	$2\mathbf{a}, \mathbf{b}, \mathbf{c}$	
$I11a$ (9, $A11a$)	$\langle 2+(1,0,0)\rangle$	$2\mathbf{a}, -2\mathbf{a}+\mathbf{b}, \mathbf{c}$	
$A11m$ (8)	$\langle 2\rangle$	$2\mathbf{a}, \mathbf{b}, \mathbf{c}$	
$I11m$ (8, $A11m$)	$\langle 2\rangle$	$2\mathbf{a}, -2\mathbf{a}+\mathbf{b}, \mathbf{c}$	
[3] $\mathbf{c}'=3\mathbf{c}$			
$A11m$ (8)	$\langle 2\rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	
$A11m$ (8)	$\langle 2+(0,0,2)\rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$0,0,1$
$A11m$ (8)	$\langle 2+(0,0,4)\rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$0,0,2$
[3] $\mathbf{a}'=3\mathbf{a}$			
$A11m$ (8)	$\langle 2\rangle$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	
[3] $\mathbf{a}'=3\mathbf{a},\ \mathbf{b}'=-2\mathbf{a}+\mathbf{b}$			
$A11m$ (8)	$\langle 2\rangle$	$3\mathbf{a}, -2\mathbf{a}+\mathbf{b}, \mathbf{c}$	
[3] $\mathbf{a}'=3\mathbf{a},\ \mathbf{b}'=-4\mathbf{a}+\mathbf{b}$			
$A11m$ (8)	$\langle 2\rangle$	$3\mathbf{a}, -4\mathbf{a}+\mathbf{b}, \mathbf{c}$	
[3] $\mathbf{b}'=3\mathbf{b}$			
$A11m$ (8)	$\langle 2\rangle$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	

- **Series of maximal isomorphic subgroups**

[p] $\mathbf{c}'=p\mathbf{c}$			
$A11m$ (8)	$\langle 2+(0,0,2u)\rangle$ $p>2;\ 0\le u<p$ p conjugate subgroups for the prime p	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$0,0,u$
[p] $\mathbf{a}'=p\mathbf{a},\ \mathbf{b}'=-2q\mathbf{a}+\mathbf{b}$			
$A11m$ (8)	$\langle 2\rangle$ $p>1;\ 0\le q<p$ no conjugate subgroups	$p\mathbf{a}, -2q\mathbf{a}+\mathbf{b}, \mathbf{c}$	
[p] $\mathbf{b}'=p\mathbf{b}$			
$A11m$ (8)	$\langle 2\rangle$ $p>2$ no conjugate subgroups	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	

I Minimal *translationengleiche* supergroups

[2] $A112/m$ (12); [2] $Cmm2$ (35); [2] $Cmc2_1$ (36); [2] $Amm2$ (38); [2] $Aem2$ (39); [2] $Fmm2$ (42); [2] $Imm2$ (44); [2] $Ima2$ (46); [3] $P3m1$ (156); [3] $P31m$ (157); [3] $R3m$ (160)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations** none

- **Decreased unit cell**

[2] $\mathbf{b}'=\frac{1}{2}\mathbf{b},\ \mathbf{c}'=\frac{1}{2}\mathbf{c}$ $P11m$ (6)