

C_{4v}^{11}
 $I4_1md$

No. 109

 $I4_1md$
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 c 1

 (1) x,y,z (2) $\bar{x}+\frac{1}{2},\bar{y}+\frac{1}{2},z+\frac{1}{2}$ (3) $\bar{y},x+\frac{1}{2},z+\frac{1}{4}$ (4) $y+\frac{1}{2},\bar{x},z+\frac{3}{4}$
 (5) x,\bar{y},z (6) $\bar{x}+\frac{1}{2},y+\frac{1}{2},z+\frac{1}{2}$ (7) $\bar{y},\bar{x}+\frac{1}{2},z+\frac{1}{4}$ (8) $y+\frac{1}{2},x,z+\frac{3}{4}$
I Maximal translationengleiche subgroups

[2] $I4_111$ (80, $I4_1$)	(1; 2; 3; 4)+		
[2] $I2m1$ (44, $Imm2$)	(1; 2; 5; 6)+		
[2] $I21d$ (43, $Fdd2$)	(1; 2; 7; 8)+	a - b, a + b, c	0, 1/2, 0

II Maximal klassengleiche subgroups

- **Loss of centring translations** none
- **Enlarged unit cell**

[3] $c' = 3c$			
$I4_1md$ (109)	$\langle 5; 2 + (1,0,1); 3 + (\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}) \rangle$	a, b, 3c	1/2, 0, 0

- **Series of maximal isomorphic subgroups**

[p] $c' = pc$			
$I4_1md$ (109)	$\langle 5; 2 + (1,0,\frac{p}{2} - \frac{1}{2}); 3 + (\frac{1}{2}, -\frac{1}{2}, \frac{p}{4} - \frac{1}{4}) \rangle$ $p > 2; p \equiv 3 \pmod{4}$ no conjugate subgroups	a, b, pc	1/2, 0, 0
[p] $c' = pc$			
$I4_1md$ (109)	$\langle 5; 2 + (0,0,\frac{p}{2} - \frac{1}{2}); 3 + (0,0,\frac{p}{4} - \frac{1}{4}) \rangle$ $p > 4; p \equiv 1 \pmod{4}$ no conjugate subgroups	a, b, pc	
[p ²] $a' = pa, b' = pb$			
$I4_1md$ (109)	$\langle 2 + (\frac{p}{2} - \frac{1}{2} + 2u, \frac{p}{2} - \frac{1}{2} + 2v, 0); 3 + (u+v, \frac{p}{2} - \frac{1}{2} - u + v, 0); 5 + (0, 2v, 0) \rangle$ $p > 2; 0 \leq u < p; 0 \leq v < p$ p^2 conjugate subgroups for the prime p	pa, pb, c	$u, v, 0$

I Minimal translationengleiche supergroups

 [2] $I4_1/amd$ (141)

II Minimal non-isomorphic klassengleiche supergroups

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

[2] $c' = \frac{1}{2}c$ $C4_2md$ (102, $P4_2nm$)			
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