

$I4$ 

No. 79

 $I4$ 
 $C_4^5$ 
**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)

**General position**

 Multiplicity,  
Wyckoff letter,  
Site symmetry

**Coordinates**
 $(0,0,0)+ (\frac{1}{2},\frac{1}{2},\frac{1}{2})+$ 

 8  $c$  1

 (1)  $x, y, z$  (2)  $\bar{x}, \bar{y}, z$  (3)  $\bar{y}, x, z$  (4)  $y, \bar{x}, z$ 
**I Maximal translationengleiche subgroups**

 [2]  $I2$  (5, A112) (1; 2)+ **b, -a - b, c**
**II Maximal klassengleiche subgroups**

 • **Loss of centring translations**

 [2]  $P4_2$  (77) 1; 2; (3; 4) +  $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$  1/2, 0, 0

 [2]  $P4$  (75) 1; 2; 3; 4

 • **Enlarged unit cell**

 [3]  $c' = 3c$   
 $I4$  (79)  $\langle 2; 3 \rangle$  **a, b, 3c**

 • **Series of maximal isomorphic subgroups**

 [p]  $c' = pc$   
 $I4$  (79)  $\langle 2; 3 \rangle$  **a, b, pc**  
 $p > 2$   
 no conjugate subgroups

 [ $p^2$ ]  $a' = pa, b' = pb$   
 $I4$  (79)  $\langle 2 + (2u, 2v, 0); 3 + (u + v, -u + v, 0) \rangle$  **pa, pb, c**  $u, v, 0$   
 $p > 2; 0 \leq u < p; 0 \leq v < p$   
 $p^2$  conjugate subgroups for prime  $p \equiv 3 \pmod{4}$ 

 [ $p = q^2 + r^2$ ]  $a' = qa - rb, b' = ra + qb$   
 $I4$  (79)  $\langle 2 + (2u, 0, 0); 3 + (u, -u, 0) \rangle$  **qa - rb, ra + qb, c**  $u, 0, 0$   
 $q > 0; r > 0; p > 4; 0 \leq u < p$   
 $p$  conjugate subgroups for prime  $p \equiv 1 \pmod{4}$ 
**I Minimal translationengleiche supergroups**

 [2]  $I4/m$  (87); [2]  $I422$  (97); [2]  $I4mm$  (107); [2]  $I4cm$  (108)

**II Minimal non-isomorphic klassengleiche supergroups**

 • **Additional centring translations** none

 • **Decreased unit cell**

 [2]  $c' = \frac{1}{2}c$   $C4$  (75, P4)