

$p2gg$ 

No. 8

 $p2gg$ 
**Generators selected** (1);  $t(1,0)$ ;  $t(0,1)$ ; (2); (3)

**General position**

 Multiplicity,  
 Wyckoff letter,  
 Site symmetry

Coordinates

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

|                       |      |               |        |
|-----------------------|------|---------------|--------|
| [2] $p1g1$ (4, $pg$ ) | 1; 3 |               | 1/4, 0 |
| [2] $p11g$ (4, $pg$ ) | 1; 4 | – <b>b, a</b> | 0, 1/4 |
| [2] $p211$ (2, $p2$ ) | 1; 2 |               |        |

**II Maximal klassengleiche subgroups**

## • Enlarged unit cell

|   |   |  |              |
|---|---|--|--------------|
| [3] $\mathbf{a}' = 3\mathbf{a}$   |   |  |              |
| $\left\{ \begin{array}{l} p2gg \text{ (8)} \\ p2gg \text{ (8)} \\ p2gg \text{ (8)} \end{array} \right.$ | $\langle 2; 3 + (1, 0) \rangle$<br>$\langle 2 + (2, 0); 3 + (3, 0) \rangle$<br>$\langle 2 + (4, 0); 3 + (5, 0) \rangle$ | <b>3a, b</b><br><b>3a, b</b><br><b>3a, b</b> | 1, 0<br>2, 0 |
| [3] $\mathbf{b}' = 3\mathbf{b}$   |   |  |              |
| $\left\{ \begin{array}{l} p2gg \text{ (8)} \\ p2gg \text{ (8)} \\ p2gg \text{ (8)} \end{array} \right.$ | $\langle 2; 3 + (0, 1) \rangle$<br>$\langle 2 + (0, 2); 3 + (0, 1) \rangle$<br>$\langle 2 + (0, 4); 3 + (0, 1) \rangle$ | <b>a, 3b</b><br><b>a, 3b</b><br><b>a, 3b</b> | 0, 1<br>0, 2 |

## • Series of maximal isomorphic subgroups

|                                     |  |                           |        |
|-------------------------------------|--|---------------------------|--------|
| [ $p$ ] $\mathbf{a}' = p\mathbf{a}$ |  |                           |        |
| $p2gg$ (8)                          | $\langle 2 + (2u, 0); 3 + (\frac{p}{2} - \frac{1}{2} + 2u, 0) \rangle$<br>$p > 2; 0 \leq u < p$<br>$p$ conjugate subgroups for the prime $p$ | <b><math>pa, b</math></b> | $u, 0$ |
| [ $p$ ] $\mathbf{b}' = p\mathbf{b}$ |  |                           |        |
| $p2gg$ (8)                          | $\langle 2 + (0, 2u); 3 + (0, \frac{p}{2} - \frac{1}{2}) \rangle$<br>$p > 2; 0 \leq u < p$<br>$p$ conjugate subgroups for the prime $p$      | <b><math>a, pb</math></b> | $0, u$ |

**I Minimal translationengleiche supergroups**

 [2]  $p4gm$  (12)

**II Minimal non-isomorphic klassengleiche supergroups**

## • Additional centring translations

 [2]  $c2mm$  (9)

## • Decreased unit cell

 [2]  $\mathbf{a}' = \frac{1}{2}\mathbf{a}$   $p2mg$  (7); [2]  $\mathbf{b}' = \frac{1}{2}\mathbf{b}$   $p2gm$  (7,  $p2mg$ )