

$P6_2$

No. 171

 $P6_2$
 C_6^4
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (4)

General position

 Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

6	<i>c</i>	1		(1) x, y, z	(2) $\bar{y}, x - y, z + \frac{2}{3}$	(3) $\bar{x} + y, \bar{x}, z + \frac{1}{3}$
				(4) \bar{x}, \bar{y}, z	(5) $y, \bar{x} + y, z + \frac{2}{3}$	(6) $x - y, x, z + \frac{1}{3}$

I Maximal translationengleiche subgroups

[2] $P3_2$ (145)	1; 2; 3
[3] $P2$ (3, $P112$)	1; 4

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $c' = 2c$		
$P6_4$ (172)	$\langle 2; 4 \rangle$	a, b, 2c
$P6_1$ (169)	$\langle 2; 4 + (0, 0, 1) \rangle$	a, b, 2c
[3] $a' = 3a, b' = 3b$		
$H6_2$ (171, $P6_2$)	$\langle 2; 4 \rangle$	a - b, a + 2b, c
$H6_2$ (171, $P6_2$)	$\langle 2 + (1, -1, 0); 4 + (2, 0, 0) \rangle$	a - b, a + 2b, c 1, 0, 0
$H6_2$ (171, $P6_2$)	$\langle 2 + (2, -2, 0); 4 + (4, 0, 0) \rangle$	a - b, a + 2b, c 2, 0, 0
[4] $a' = 2a, b' = 2b$		
$P6_2$ (171)	$\langle 2; 4 \rangle$	2a, 2b, c
$P6_2$ (171)	$\langle 2 + (1, -1, 0); 4 + (2, 0, 0) \rangle$	2a, 2b, c 1, 0, 0
$P6_2$ (171)	$\langle 2 + (1, 2, 0); 4 + (0, 2, 0) \rangle$	2a, 2b, c 0, 1, 0
$P6_2$ (171)	$\langle 2 + (2, 1, 0); 4 + (2, 2, 0) \rangle$	2a, 2b, c 1, 1, 0

• Series of maximal isomorphic subgroups

[p] $c' = pc$		
$P6_4$ (172)	$\langle 4; 2 + (0, 0, \frac{p}{3} - \frac{2}{3}) \rangle$ $p > 1; p \equiv 2 \pmod{3}$ no conjugate subgroups	a, b, pc
$P6_2$ (171)	$\langle 4; 2 + (0, 0, \frac{2p}{3} - \frac{2}{3}) \rangle$ $p > 6; p \equiv 1 \pmod{3}$ no conjugate subgroups	a, b, pc
[p^2] $a' = pa, b' = pb$		
$P6_2$ (171)	$\langle 2 + (u + v, -u + 2v, 0); 4 + (2u, 2v, 0) \rangle$ $p > 1; 0 \leq u < p; 0 \leq v < p$ p^2 conjugate subgroups for prime $p \equiv 2 \pmod{3}$	pa, pb, c $u, v, 0$
[$p = q^2 + r^2 + qr$] $a' = qa - rb, b' = ra + (q + r)b$		
$P6_2$ (171)	$\langle 2 + (u, -u, 0); 4 + (2u, 0, 0) \rangle$ $q > 0; r > 0; p > 2; 0 \leq u < p$ p conjugate subgroups for each pair of q and r	qa - rb, ra + (q + r)b, c $u, 0, 0$

I Minimal translationengleiche supergroups

 [2] $P6_22$ (180)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

none

• Decreased unit cell

 [3] $c' = \frac{1}{3}c$ $P6$ (168)