

C_{3i}^1
 $P\bar{3}$

No. 147

 $P\bar{3}$
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 g 1

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

 [2] $P\bar{3}$ (143) 1; 2; 3
 [3] $P\bar{1}$ (2) 1; 4

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{c}' = 2\mathbf{c}$			
$P\bar{3}$ (147)	$\langle 2; 4 \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
$P\bar{3}$ (147)	$\langle 2; 4 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	0, 0, 1/2
[3] $\mathbf{c}' = 3\mathbf{c}$			
$P\bar{3}$ (147)	$\langle 2; 4 \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	
$P\bar{3}$ (147)	$\langle 2; 4 + (0, 0, 2) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0, 0, 1
$P\bar{3}$ (147)	$\langle 2; 4 + (0, 0, 4) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0, 0, 2
[3] $\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = 3\mathbf{b}$			
$H\bar{3}$ (147, $P\bar{3}$)	$\langle 2; 4 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, \mathbf{c}$	
$H\bar{3}$ (147, $P\bar{3}$)	$\langle 2 + (1, -1, 0); 4 + (2, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, \mathbf{c}$	1, 0, 0
$H\bar{3}$ (147, $P\bar{3}$)	$\langle 2 + (2, -2, 0); 4 + (4, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, \mathbf{c}$	2, 0, 0
[3] $\mathbf{a}' = \mathbf{a} - \mathbf{b}, \mathbf{b}' = \mathbf{a} + 2\mathbf{b}, \mathbf{c}' = 3\mathbf{c}$			
$R\bar{3}$ (148)	$\langle 2; 4 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, 3\mathbf{c}$	
$R\bar{3}$ (148)	$\langle 2; 4 + (0, 0, 2) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, 3\mathbf{c}$	0, 0, 1
$R\bar{3}$ (148)	$\langle 2; 4 + (0, 0, 4) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + 2\mathbf{b}, 3\mathbf{c}$	0, 0, 2
[3] $\mathbf{a}' = 2\mathbf{a} + \mathbf{b}, \mathbf{b}' = -\mathbf{a} + \mathbf{b}, \mathbf{c}' = 3\mathbf{c}$			
$R\bar{3}$ (148)	$\langle 2; 4 \rangle$	$2\mathbf{a} + \mathbf{b}, -\mathbf{a} + \mathbf{b}, 3\mathbf{c}$	
$R\bar{3}$ (148)	$\langle 2; 4 + (0, 0, 2) \rangle$	$2\mathbf{a} + \mathbf{b}, -\mathbf{a} + \mathbf{b}, 3\mathbf{c}$	0, 0, 1
$R\bar{3}$ (148)	$\langle 2; 4 + (0, 0, 4) \rangle$	$2\mathbf{a} + \mathbf{b}, -\mathbf{a} + \mathbf{b}, 3\mathbf{c}$	0, 0, 2
[4] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$			
$P\bar{3}$ (147)	$\langle 2; 4 \rangle$	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	
$P\bar{3}$ (147)	$\langle 2 + (1, -1, 0); 4 + (2, 0, 0) \rangle$	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	1, 0, 0
$P\bar{3}$ (147)	$\langle 2 + (1, 2, 0); 4 + (0, 2, 0) \rangle$	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	0, 1, 0
$P\bar{3}$ (147)	$\langle 2 + (2, 1, 0); 4 + (2, 2, 0) \rangle$	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	1, 1, 0

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$			
$P\bar{3}$ (147)	$\langle 2; 4 + (0, 0, 2u) \rangle$ $p > 2; 0 \leq u < p$ p conjugate subgroups for the prime p	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	0, 0, u
[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$			
$P\bar{3}$ (147)	$\langle 2 + (u + v, -u + 2v, 0); 4 + (2u, 2v, 0) \rangle$ $p > 1; 0 \leq u < p; 0 \leq v < p$ p^2 conjugate subgroups for prime $p \equiv 2 \pmod{3}$	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$u, v, 0$
[$p = q^2 + r^2 + qr$] $\mathbf{a}' = q\mathbf{a} - r\mathbf{b}, \mathbf{b}' = r\mathbf{a} + (q + r)\mathbf{b}$			
$P\bar{3}$ (147)	$\langle 2 + (u, -u, 0); 4 + (2u, 0, 0) \rangle$ $q > 0; r > 0; p > 2; 0 \leq u < p$ p conjugate subgroups for each pair of q and r	$q\mathbf{a} - r\mathbf{b}, r\mathbf{a} + (q + r)\mathbf{b}, \mathbf{c}$	$u, 0, 0$

I Minimal translationengleiche supergroups

 [2] $P\bar{3}1m$ (162); [2] $P\bar{3}1c$ (163); [2] $P\bar{3}m1$ (164); [2] $P\bar{3}c1$ (165); [2] $P6/m$ (175); [2] $P6_3/m$ (176)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [3] $R_{\text{obv}}\bar{3}$ (148, $R\bar{3}$); [3] $R_{\text{rev}}\bar{3}$ (148, $R\bar{3}$)

• Decreased unit cell

none