

D_3^5
 $P3_212$

No. 153

 $P3_212$
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) $\bar{y}, \bar{x}, \bar{z} + \frac{1}{3}$	(5) $\bar{x} + y, y, \bar{z} + \frac{2}{3}$	(6) $x, x - y, \bar{z}$

I Maximal translationengleiche subgroups

[2] $P3_211$ (145, $P3_2$)	1; 2; 3				
{ [3] $P112$ (5, $C121$) [3] $P112$ (5, $C121$) [3] $P112$ (5, $C121$)	1; 6			b, -2a - b, c	
	1; 5			a, a + 2b, c	0, 0, 1/3
	1; 4			-a - b, a - b, c	0, 0, 2/3

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $c' = 2c$					
	$P3_212$ (151)	$\langle 2; 4 + (0, 0, 1) \rangle$		a, b, 2c	
	$P3_212$ (151)	$\langle 2; 4 + (0, 0, 2) \rangle$		a, b, 2c	0, 0, 1/2
[3] $a' = 3a, b' = 3b$					
{	$H3_212$ (154, $P3_221$)	$\langle 2; 4 \rangle$		a - b, a + 2b, c	
	$H3_212$ (154, $P3_221$)	$\langle 2 + (1, -1, 0); 4 + (1, 1, 0) \rangle$		a - b, a + 2b, c	1, 0, 0
	$H3_212$ (154, $P3_221$)	$\langle 2 + (2, 1, 0); 4 + (2, 2, 0) \rangle$		a - b, a + 2b, c	1, 1, 0
	$H3_212$ (154, $P3_221$)	$\langle 4; 2 + (1, 0, 0) \rangle$		a - b, a + 2b, c	2/3, -2/3, 0
	$H3_212$ (154, $P3_221$)	$\langle 2 + (2, 2, 0); 4 + (1, 1, 0) \rangle$		a - b, a + 2b, c	2/3, 1/3, 0
	$H3_212$ (154, $P3_221$)	$\langle 2 + (3, 4, 0); 4 + (2, 2, 0) \rangle$		a - b, a + 2b, c	2/3, 4/3, 0
{	$H3_212$ (154, $P3_221$)	$\langle 4; 2 + (1, 1, 0) \rangle$		a - b, a + 2b, c	1/3, -1/3, 0
	$H3_212$ (154, $P3_221$)	$\langle 2 + (2, 3, 0); 4 + (1, 1, 0) \rangle$		a - b, a + 2b, c	1/3, 2/3, 0
	$H3_212$ (154, $P3_221$)	$\langle 2 + (3, 2, 0); 4 + (2, 2, 0) \rangle$		a - b, a + 2b, c	4/3, 2/3, 0
[4] $a' = 2a, b' = 2b$					
{	$P3_212$ (153)	$\langle 2; 4 \rangle$		2a, 2b, c	
	$P3_212$ (153)	$\langle 2 + (1, -1, 0); 4 + (1, 1, 0) \rangle$		2a, 2b, c	1, 0, 0
	$P3_212$ (153)	$\langle 2 + (1, 2, 0); 4 + (1, 1, 0) \rangle$		2a, 2b, c	0, 1, 0
	$P3_212$ (153)	$\langle 2 + (2, 1, 0); 4 + (2, 2, 0) \rangle$		2a, 2b, c	1, 1, 0

• Series of maximal isomorphic subgroups

[p] $c' = pc$					
	$P3_212$ (153)	$\langle 2 + (0, 0, \frac{2p}{3} - \frac{2}{3}); 4 + (0, 0, \frac{p}{3} - \frac{1}{3} + 2u) \rangle$ $p > 6; 0 \leq u < p$		a, b, pc	0, 0, u
		p conjugate subgroups for prime $p \equiv 1 \pmod{3}$			
	$P3_212$ (151)	$\langle 2 + (0, 0, \frac{p}{3} - \frac{2}{3}); 4 + (0, 0, \frac{2p}{3} - \frac{1}{3} + 2u) \rangle$ $p > 2; 0 \leq u < p$		a, b, pc	0, 0, u
		p conjugate subgroups for prime $p \equiv 2 \pmod{3}$			
[p^2] $a' = pa, b' = pb$					
	$P3_212$ (153)	$\langle 2 + (u + v, -u + 2v, 0); 4 + (u + v, u + v, 0) \rangle$ $p > 1; p \neq 3; 0 \leq u < p; 0 \leq v < p$		pa, pb, c	$u, v, 0$
		p^2 conjugate subgroups for the prime p			

I Minimal translationengleiche supergroups

 [2] $P6_522$ (179); [2] $P6_222$ (180)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [3] $H3_212$ (154, $P3_221$)

• Decreased unit cell

 [3] $c' = \frac{1}{3}c$ $P3_212$ (149)