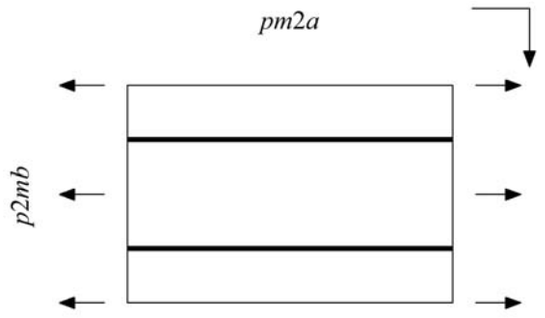
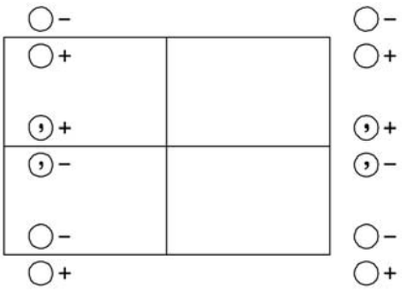
$pm2a$ $m2m$ Orthorhombic/Rectangular

No. 31 $pm2a$ Patterson symmetry $pmmm$





Origin on 12*a*

Asymmetric unit $0 \le x \le \frac{1}{4}; \quad 0 \le y \le 1$

Symmetry operations

(1) 1 (2) 2 $0,y,0$ (3) a $x,y,0$ (4) m $\frac{1}{4},y,z$

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

Positions

Multiplicity, Wyckoff letter, Site symmetry			Coordinates				Reflection conditions
							General:
4	c	1	(1) x,y,z	(2) $\bar{x},y,\bar{z}$	(3) $x+\frac{1}{2},y,\bar{z}$	(4) $\bar{x}+\frac{1}{2},y,z$	hk: $h=2n$ $h0$: $h=2n$
							Special: no extra conditions
2	b	m . .	$\frac{1}{4},y,z$	$\frac{3}{4},y,\bar{z}$			
2	a	. 2 .	$0,y,0$	$\frac{1}{2},y,0$			

Symmetry of special projections

Along [001] $p1m1$
$\mathbf{a}' = \frac{1}{2}\mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
Origin at $0,0,z$

Along [100] $\not{p}11m$
$\mathbf{a}' = \mathbf{b}$
Origin at $x,0,0$

Along [010] $\not{p}2mg$
$\mathbf{a}' = \mathbf{a}$
Origin at $0,y,0$

Maximal non-isotypic subgroups

I [2] $pm11$ (11) 1; 4
[2] $p1211$ ($p2111$, 8) 1; 2
[2] $p11a$ (5) 1; 3

IIa none

IIb [2] $pb2n$ ($\mathbf{b}' = 2\mathbf{b}$) (34); [2] $pb2_1a$ ($\mathbf{b}' = 2\mathbf{b}$) (33); [2] $pm2_1n$ ($\mathbf{b}' = 2\mathbf{b}$) (32)

Maximal isotypic subgroups of lowest index

IIc [2] $pm2a$ ($\mathbf{b}' = 2\mathbf{b}$) (31); [3] $pm2a$ ($\mathbf{a}' = 3\mathbf{a}$) (31)

Minimal non-isotypic supergroups

I [2] $pmaa$ (38); [2] $pmma$ (41)

II [2] $cm2e$ (36); [2] $pm2m$ ($\mathbf{a}' = \frac{1}{2}\mathbf{a}$) (27)