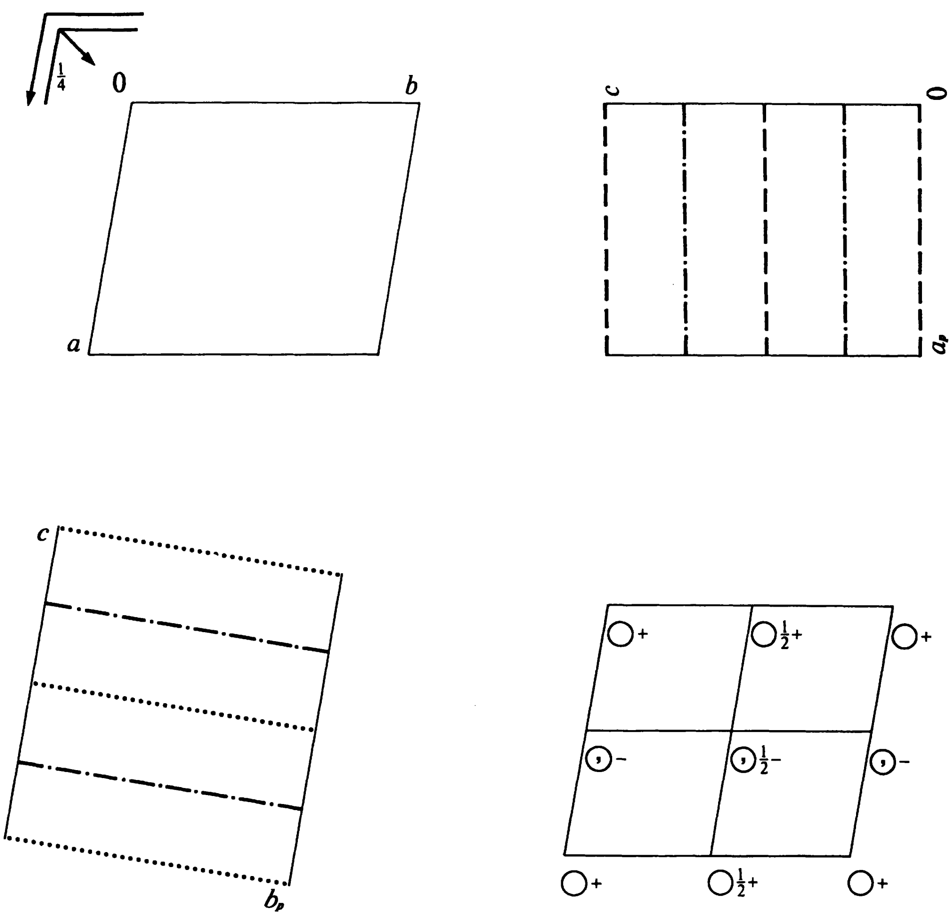
International Tables for Crystallography (2006). Vol. A, Space group 9, pp. 156–159.

C c — C_s^4 — *m* — Monoclinic

No. 9 — *A* 1 1 *a* — Patterson symmetry *A* 1 1 2/*m*

UNIQUE AXIS *c*, CELL CHOICE 1



Origin on glide plane *a*

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

Symmetry operations

For $(0,0,0)+$ set

(1) 1 (2) *a* $x,y,0$

For $(0,\frac{1}{2},\frac{1}{2})+$ set

(1) $t(0,\frac{1}{2},\frac{1}{2})$ (2) $n(\frac{1}{2},\frac{1}{2},0)$ $x,y,\frac{1}{4}$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(0,\frac{1}{2},\frac{1}{2})$; (2)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates		Reflection conditions
	$(0,0,0)+$	$(0,\frac{1}{2},\frac{1}{2})+$	General:
4 a 1	(1) x,y,z	(2) $x+\frac{1}{2},y,\bar{z}$	$hkl: k+l=2n$ $hk0: h,k=2n$ $0kl: k+l=2n$ $h0l: l=2n$ $00l: l=2n$ $h00: h=2n$ $0k0: k=2n$

Symmetry of special projections

Along [001] $p1$
$\mathbf{a}'=\frac{1}{2}\mathbf{a}$ $\mathbf{b}'=\frac{1}{2}\mathbf{b}$
Origin at $0,0,z$

Along [100] $c11m$
$\mathbf{a}'=\mathbf{b}_p$ $\mathbf{b}'=\mathbf{c}$
Origin at $x,0,0$

Along [010] $p1g1$
$\mathbf{a}'=\frac{1}{2}\mathbf{c}$ $\mathbf{b}'=\mathbf{a}_p$
Origin at $0,y,0$

Maximal non-isomorphic subgroups

I [2] $A1$ ($P1$, 1) 1+

IIa [2] $P11a$ (Pc, 7) 1; 2
[2] $P11n$ (Pc, 7) 1; $2+(0,\frac{1}{2},\frac{1}{2})$

IIb none

Maximal isomorphic subgroups of lowest index

IIc [3] $A11a$ ($\mathbf{c}'=3\mathbf{c}$) (Cc, 9); [3] $A11a$ ($\mathbf{a}'=3\mathbf{a}$) (Cc, 9); [3] $A11a$ ($\mathbf{b}'=3\mathbf{b}$ or $\mathbf{a}'=\mathbf{a}-\mathbf{b},\mathbf{b}'=3\mathbf{b}$ or $\mathbf{a}'=\mathbf{a}+\mathbf{b},\mathbf{b}'=3\mathbf{b}$) ($Cc$, 9)

Minimal non-isomorphic supergroups

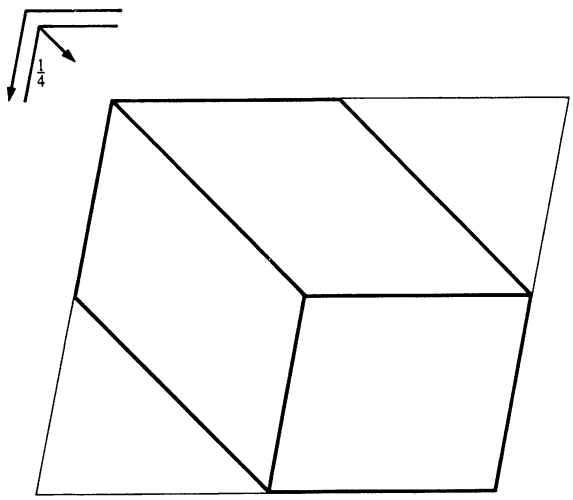
I [2] $C2/c$ (15); [2] $Cmc2_1$ (36); [2] $Ccc2$ (37); [2] $Ama2$ (40); [2] $Aea2$ (41); [2] $Fdd2$ (43); [2] $Iba2$ (45); [2] $Ima2$ (46); [3] $P3c1$ (158); [3] $P31c$ (159); [3] $R3c$ (161)

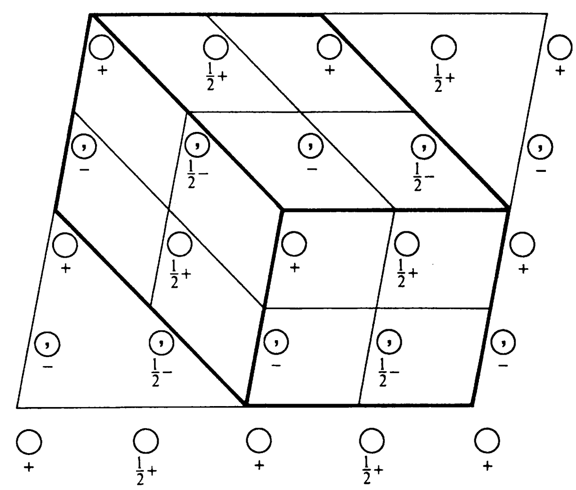
II [2] $F11m$ (Cm, 8); [2] $A11m$ ($\mathbf{a}'=\frac{1}{2}\mathbf{a}$) ($Cm$, 8); [2] $P11a$ ($\mathbf{b}'=\frac{1}{2}\mathbf{b},\mathbf{c}'=\frac{1}{2}\mathbf{c}$) ($Pc$, 7)

Cc C_s^4 *m* Monoclinic

No. 9

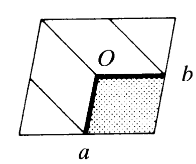
UNIQUE AXIS *c*, DIFFERENT CELL CHOICES





A 1 1 *a*

UNIQUE AXIS *c*, CELL CHOICE 1



Origin on glide plane *a*

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

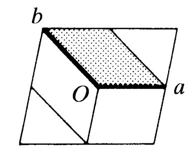
Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(0,\frac{1}{2},\frac{1}{2})$; (2)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates		Reflection conditions
	$(0,0,0)+$	$(0,\frac{1}{2},\frac{1}{2})+$	General:
4 *a* 1	(1) x,y,z	(2) $x+\frac{1}{2},y,\bar{z}$	hkl : $k+l=2n$ $hk0$: $h,k=2n$ $0kl$: $k+l=2n$ $h0l$: $l=2n$ $00l$: $l=2n$ $h00$: $h=2n$ $0k0$: $k=2n$

*B*11*n*

UNIQUE AXIS *c*, CELL CHOICE 2



Origin on glide plane *n*

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

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2},0,\frac{1}{2})$; (2)

Positions

Multiplicity, Wyckoff letter, Site symmetry — Coordinates — Reflection conditions

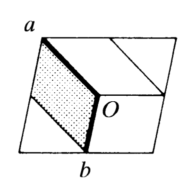
$(0,0,0)+ \quad (\frac{1}{2},0,\frac{1}{2})+$

General:

Multiplicity	Wyckoff letter	Site symmetry	Coordinates		Reflection conditions
4	*a*	1	(1) x,y,z	(2) $x+\frac{1}{2},y+\frac{1}{2},\bar{z}$	$hkl: h+l=2n$ $hk0: h,k=2n$ $0kl: l=2n$ $h0l: h+l=2n$ $00l: l=2n$ $h00: h=2n$ $0k0: k=2n$

*I*11*b*

UNIQUE AXIS *c*, CELL CHOICE 3



Origin on glide plane *b*

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

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2},\frac{1}{2},\frac{1}{2})$; (2)

Positions

Multiplicity, Wyckoff letter, Site symmetry — Coordinates — Reflection conditions

$(0,0,0)+ \quad (\frac{1}{2},\frac{1}{2},\frac{1}{2})+$

General:

Multiplicity	Wyckoff letter	Site symmetry	Coordinates		Reflection conditions
4	*a*	1	(1) x,y,z	(2) $x,y+\frac{1}{2},\bar{z}$	$hkl: h+k+l=2n$ $hk0: h,k=2n$ $0kl: k+l=2n$ $h0l: h+l=2n$ $00l: l=2n$ $h00: h=2n$ $0k0: k=2n$