

Aem2

C_{2v}^{15}

mm2

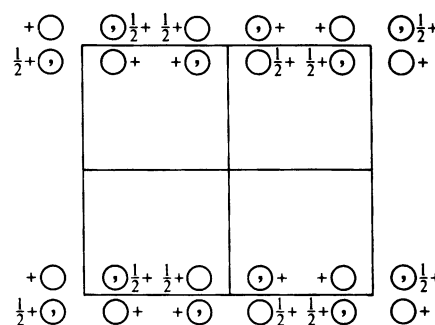
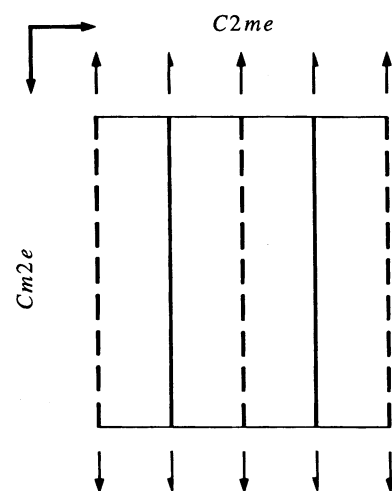
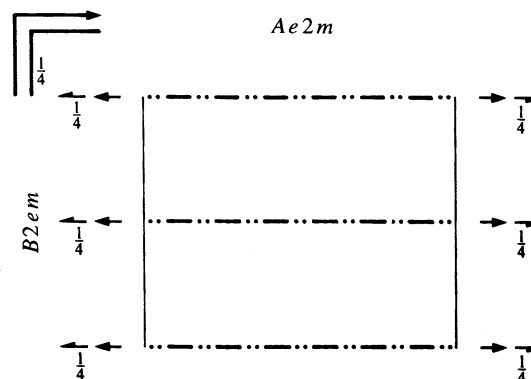
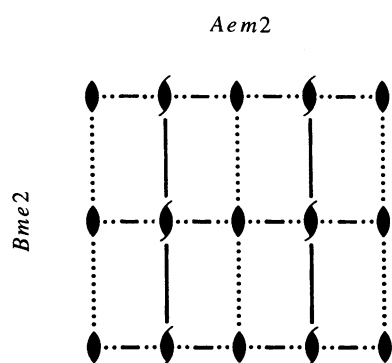
Orthorhombic

No. 39

Aem2

Patterson symmetry *Ammm* (*Cmmm*)

Former space-group symbol *Abm2*; cf. Chapter 1.3



Origin on *ec2*

Asymmetric unit $0 \leq x \leq \frac{1}{2}; 0 \leq y \leq \frac{1}{4}; 0 \leq z \leq 1$

Symmetry operations

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

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

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

- (1) *t* $(0, \frac{1}{2}, \frac{1}{2})$ (2) 2 $(0,0, \frac{1}{2})$ $0, \frac{1}{4}, z$ (3) *c* $x,0,z$ (4) *c* $0,y,z$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(0, \frac{1}{2}, \frac{1}{2})$; (2); (3)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
	(0,0,0)+	(0, $\frac{1}{2}$, $\frac{1}{2}$)+			General:
8 <i>d</i> 1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $x, \bar{y} + \frac{1}{2}, z$	(4) $\bar{x}, y + \frac{1}{2}, z$	$hkl : k + l = 2n$ $0kl : k, l = 2n$ $h0l : l = 2n$ $hk0 : k = 2n$ $0k0 : k = 2n$ $00l : l = 2n$
4 <i>c</i> . <i>m</i> .	$x, \frac{1}{4}, z$	$\bar{x}, \frac{3}{4}, z$			Special: as above, plus no extra conditions
4 <i>b</i> . . 2	$\frac{1}{2}, 0, z$	$\frac{1}{2}, \frac{1}{2}, z$			$hkl : k = 2n$
4 <i>a</i> . . 2	$0, 0, z$	$0, \frac{1}{2}, z$			$hkl : k = 2n$

Symmetry of special projections

Along [001] $p2mm$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \frac{1}{2}\mathbf{b}$
 Origin at 0, 0, z

Along [100] $p1m1$
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \frac{1}{2}\mathbf{c}$
 Origin at $x, 0, 0$

Along [010] $p11m$
 $\mathbf{a}' = \frac{1}{2}\mathbf{c}$ $\mathbf{b}' = \mathbf{a}$
 Origin at 0, $y, 0$

Maximal non-isomorphic subgroups

I	[2] $A1m1$ (Cm , 8)	(1; 3)+
	[2] $Ae11$ (Pc , 7)	(1; 4)+
	[2] $A112$ ($C2$, 5)	(1; 2)+
IIa	[2] $Pbc2_1$ ($Pca2_1$, 29)	1; 4; (2; 3) + (0, $\frac{1}{2}$, $\frac{1}{2}$)
	[2] $Pbm2$ ($Pma2$, 28)	1; 2; 3; 4
	[2] $Pcc2$ (27)	1; 2; (3; 4) + (0, $\frac{1}{2}$, $\frac{1}{2}$)
	[2] $Pcm2_1$ ($Pmc2_1$, 26)	1; 3; (2; 4) + (0, $\frac{1}{2}$, $\frac{1}{2}$)
IIb	[2] $Ibm2$ ($\mathbf{a}' = 2\mathbf{a}$) ($Ima2$, 46); [2] $Iba2$ ($\mathbf{a}' = 2\mathbf{a}$) (45); [2] $Aea2$ ($\mathbf{a}' = 2\mathbf{a}$) (41)	

Maximal isomorphic subgroups of lowest index

IIc [2] $Aem2$ ($\mathbf{a}' = 2\mathbf{a}$) (39); [3] $Aem2$ ($\mathbf{b}' = 3\mathbf{b}$) (39); [3] $Aem2$ ($\mathbf{c}' = 3\mathbf{c}$) (39)

Minimal non-isomorphic supergroups

I [2] $Cmce$ (64); [2] $Cmme$ (67)
II [2] $Fmm2$ (42); [2] $Pmm2$ ($\mathbf{b}' = \frac{1}{2}\mathbf{b}, \mathbf{c}' = \frac{1}{2}\mathbf{c}$) (25)