

$D_{2h}^{26}$  $I2/b2/a2/m$ 

No. 72

 $Ibam$ 

Axes	Coordinates	Wyckoff positions											
		4a	4b	4c	4d	8e	8f	8g	8h	8i	8j	16k	
<b>I Maximal translationengleiche subgroups</b>													
[2] $I2cm$ (46)	$x, y, z + \frac{1}{4}$	4a	4a	4b	4b	8c	$2\times 4a$	8c	8c	8c	$2\times 4b$	$2\times 8c$	
$\cong Ima2$	$\mathbf{c}, -\mathbf{b}, \mathbf{a}$	$z + \frac{1}{4}, -y, x$											
[2] $Ic2m$ (46)	$x, y, z + \frac{1}{4}$	4a	4a	4b	4b	8c	8c	$2\times 4a$	8c	8c	$2\times 4b$	$2\times 8c$	
$\cong Ima2$	$\mathbf{c}, \mathbf{a}, \mathbf{b}$	$z + \frac{1}{4}, x, y$											
[2] $Iba2$ (45)		4a	4b	4a	4b	8c	8c	$2\times 4a$	$2\times 4b$	8c		$2\times 8c$	
[2] $I222$ (23)	$x, y, z + \frac{1}{4}$	2a; 2c	2b; 2d	4i	4j	8k	$4e; 4f$	$4g; 4h$	$2\times 4i$	$2\times 4j$	8k	$2\times 8k$	
[2] $I2/c11$ (15)		4e	4e	4a	4b	4c; 4d	$2\times 4e$	8f	8f	8f	8f	$2\times 8f$	
$\cong I12/a1$	$\mathbf{c}, \mathbf{a}, \mathbf{b}$	$z, x, y$											
$\cong C12/c1$	$-\mathbf{b}-\mathbf{c}, \mathbf{a}, \mathbf{c}$	$-y, x, -y+z$											
[2] $I12/c1$ (15)		4e	4e	4a	4b	4c; 4d	8f	$2\times 4e$	8f	8f	8f	$2\times 8f$	
$\cong C12/c1$	$\mathbf{a}-\mathbf{c}, \mathbf{b}, \mathbf{c}$	$x, y, x+z$											
[2] $I112/m$ (12)		4g	4h	2a; 2b	2c; 2d	4e; 4f	8j	8j	$2\times 4g$	$2\times 4h$	$2\times 4i$	$2\times 8j$	
$\cong A112/m$	$\mathbf{b}, -\mathbf{a}-\mathbf{b}, \mathbf{c}$	$-x+y, -y, z$											

**II Maximal klassengleiche subgroups**

## Loss of centring translations

[2] $Pbcn$ (60)		4c	4c	4a	4b	8d	8d	$2\times 4c$	8d	8d	8d	$2\times 8d$	
[2] $Pcan$ (60)		4c	4c	4a	4b	8d	$2\times 4c$	8d	8d	8d	8d	$2\times 8d$	
$\cong Pbcn$	$\mathbf{b}, -\mathbf{a}, \mathbf{c}$	$y, -x, z$											
[2] $Pbcm$ (57)		$x + \frac{1}{4}, y + \frac{1}{4}, z + \frac{1}{4}$	4c	4c	4d	4d	$4a; 4b$	$2\times 4c$	8e	8e	8e	$2\times 4d$	
[2] $Pcam$ (57)		$x + \frac{1}{4}, y + \frac{1}{4}, z + \frac{1}{4}$	4c	4c	4d	4d	$4a; 4b$	8e	$2\times 4c$	8e	8e	$2\times 4d$	
$\cong Pbcm$	$\mathbf{b}, -\mathbf{a}, \mathbf{c}$	$y + \frac{1}{4}, -x - \frac{1}{4}, z + \frac{1}{4}$											
[2] $Pccn$ (56)		$x + \frac{1}{4}, y + \frac{1}{4}, z + \frac{1}{4}$	4c	4d	4c	4d	$4a; 4b$	8e	8e	$2\times 4c$	$2\times 4d$	8e	
[2] $Pbam$ (55)			4e	4f	2a; 2b	2c; 2d	8i	8i	$2\times 4e$	$2\times 4f$	$4g; 4h$	$2\times 8i$	
[2] $Pban$ (50)	origin 1:	$x, y, z + \frac{1}{4}$	2a; 2d	2b; 2c	4k	4l	$4e; 4f$	$4g; 4h$	$4i; 4j$	$2\times 4k$	$2\times 4l$	8m	$2\times 8m$
	origin 2:	$x + \frac{1}{4}, y + \frac{1}{4}, z + \frac{1}{4}$											
[2] $Pccm$ (49)			2e; 2h	2f; 2g	2a; 2b	2c; 2d	8r	4i; 4j	$4k; 4l$	$4m; 4n$	$4o; 4p$	$2\times 4q$	$2\times 8r$

## Enlarged unit cell, isomorphic

[3] $Ibam$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{3}x, y, z; \pm(\frac{1}{3}, 0, 0)$	4a; 8f	4b; 8f	4c; 8j	4d; 8j	8e; 16k	$3\times 8f$	8g; 16k	8h; 16k	8i; 16k	$3\times 8j$	$3\times 16k$
[p] $Ibam$	$p\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{p}x, y, z; +(\frac{u}{p}, 0, 0)$	4a; $p = \text{prime} > 2; u = 1, \dots, p-1$	4b; $\frac{p-1}{2} \times 8f$	4c; $\frac{p-1}{2} \times 8f$	4d; $\frac{p-1}{2} \times 8j$	8e; $\frac{p-1}{2} \times 16k$	$p \times 8f$	8g; $\frac{p-1}{2} \times 16k$	8h; $\frac{p-1}{2} \times 16k$	8i; $\frac{p-1}{2} \times 16k$	$p \times 8j$	$p \times 16k$
[3] $Ibam$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	$x, \frac{1}{3}y, z; \pm(0, \frac{1}{3}, 0)$	4a; 8g	4b; 8g	4c; 8j	4d; 8j	8e; 16k	8f; 16k	$3\times 8g$	8h; 16k	8i; 16k	$3\times 8j$	$3\times 16k$
[p] $Ibam$	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$x, \frac{1}{p}y, z; +(0, \frac{u}{p}, 0)$	4a; $p = \text{prime} > 2; u = 1, \dots, p-1$	4b; $\frac{p-1}{2} \times 8g$	4c; $\frac{p-1}{2} \times 8g$	4d; $\frac{p-1}{2} \times 8j$	8e; $\frac{p-1}{2} \times 16k$	8f; $\frac{p-1}{2} \times 16k$	$p \times 8g$	8h; $\frac{p-1}{2} \times 16k$	8i; $\frac{p-1}{2} \times 16k$	$p \times 8j$	$p \times 16k$
[3] $Ibam$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	4a; 8h	4b; 8i	4c; 8h	4d; 8i	8e; 16k	8f; 16k	8g; 16k	$3\times 8h$	$3\times 8i$	8j; 16k	$3\times 16k$
[p] $Ibam$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$	4a; $p = \text{prime} > 2; u = 1, \dots, p-1$	4b; $\frac{p-1}{2} \times 8h$	4c; $\frac{p-1}{2} \times 8i$	4d; $\frac{p-1}{2} \times 8h$	8e; $\frac{p-1}{2} \times 16k$	8f; $\frac{p-1}{2} \times 16k$	8g; $\frac{p-1}{2} \times 16k$	$p \times 8h$	$p \times 8i$	8j;	$p \times 16k$

## Nonconventional settings

interchange letters and sequences in Hermann–Mauguin symbols, axes and coordinates:

$Imcb$	$C \rightarrow A \rightarrow B$	$a \rightarrow b \rightarrow c \rightarrow a$	$\mathbf{a} \rightarrow \mathbf{b} \rightarrow \mathbf{c} \rightarrow \mathbf{a}$	$x \rightarrow y \rightarrow z \rightarrow x$
$Icma$	$A \rightarrow C \rightarrow B$	$a \leftarrow b \leftarrow c \leftarrow a$	$\mathbf{a} \leftarrow \mathbf{b} \leftarrow \mathbf{c} \leftarrow \mathbf{a}$	$x \leftarrow y \leftarrow z \leftarrow x$