

Tetragonal

6. SCANNING TABLES

 Laue class $C_{4h} - 4/m$

 Geometric class $C_{4h} - 4/m$

 No. 83 $P4/m$

$$\mathcal{G} = P4/m$$

 C_{4h}^1

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$P4/m$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ [$\mathbf{sd}, -\mathbf{sd}$]	$p4/m$ $p4$	L51 L49

 No. 84 $P4_2/m$

$$\mathcal{G} = P4_2/m$$

 C_{4h}^2

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$P4_2/m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ [$\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}$]	$p112/m$ $p112$	L06 L03

 No. 85 $P4/n$

$$\mathcal{G} = P4/n \text{ origin 1}$$

 C_{4h}^3

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$P4/n$ (origin 1)	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ [$\mathbf{sd}, -\mathbf{sd}$]	$p4/n$ (a /2 or b /2) $p112$	L52 L03

 No. 85 $P4/n$

$$\mathcal{G} = P4/n \text{ origin 2}$$

 C_{4h}^3

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$P4/n$ (origin 2)	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ [$\mathbf{sd}, -\mathbf{sd}$]	$p4/n$ [(a + b)/4] $p112$ [(a + b)/4]	L52 L03

No. 88 $I4_1/a$

$\mathcal{G} = I4_1/a$ origin 2

C_{4h}^6

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit $s\mathbf{d}$	Sectional layer group	
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}			$\mathcal{L}(s\mathbf{d})$	
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$I4_1/a$ (origin 2)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$ $\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$ $\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{4})\mathbf{d},$ $(\pm s + \frac{1}{2})\mathbf{d}, (\pm s + \frac{3}{4})\mathbf{d}]$	$p112/b$	L07
						$p112/a [(\mathbf{a} + \mathbf{b})/4]$	L07
						$p\bar{4}(\mathbf{b}/4)$	L50
						$p\bar{4}(3\mathbf{b}/4)$	L50
						$p112(\mathbf{b}/4)$	L03

Auxiliary tables for Laue class $C_{4h} - 4/m$

Centring types P and I

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
($mn0$)	\mathbf{c}	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	\mathbf{a}	\mathbf{b}	\mathbf{c}
($\bar{m}n0$)	\mathbf{c}	$m\mathbf{a} + n\mathbf{b}$	$-q\mathbf{a} + p\mathbf{b}$			

Arithmetic classes $4P$ and $4I$

Serial No.	75	76	77	78	79	80
Group type	C_4^1	C_4^2	C_4^3	C_4^4	C_4^5	C_4^6
Group	$P4$	$P4_1$	$P4_2$	$P4_3$	$I4$	$I4_1$
($mn0$)	$P112$	$P112_1$	$P112$	$P112_1$	$I112$	$I112$
($\bar{m}n0$)						

Arithmetic classes $\bar{4}P$ and $\bar{4}$

Serial No.	81	82
Group type	S_4^1	S_4^2
Group	$P\bar{4}$	$I\bar{4}$
($mn0$)	$P112$	$I112$
($\bar{m}n0$)		

Arithmetic class $4/mP$

Serial No.	83	84	85		86	
			Origin 1	Origin 2	Origin 1	Origin 2
Group type	C_{4h}^1	C_{4h}^2	C_{4h}^3		C_{4h}^4	
Group	$P4/m$	$P4_2/m$	$P4/n$		$P4_2/n$	
($mn0$)	$P112/m$	$P112/m$	$P112/n$	$P112/n$	$P112/n$	$P112/n$
($\bar{m}n0$)			$(\mathbf{a} + \mathbf{b})/4$		$(\mathbf{a} + \mathbf{b} + \mathbf{c})/4$	