

Orthorhombic

6. SCANNING TABLES

Laue class  $D_{2h} - mmm$ Laue class  $D_{2h} - mmm$ Geometric class  $D_2 - 222$ No. 16  $P222$  $\mathcal{G} = P222$  $D_2^1$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$				
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P222$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p222$	L19
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$		$[s\mathbf{d}, -s\mathbf{d}]$	$p112$	L03
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$				

No. 17  $P222_1$  $\mathcal{G} = P222_1$  $D_2^2$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$		
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$					
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P222_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p211$	L08	
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$		$P22_12$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p22_12$ $p112$	L20 L03
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$		$P2_122$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p2_122 (\mathbf{a}'/4)$ $p112 (\mathbf{a}'/4)$	L20 L03

No. 18  $P2_12_12$  $\mathcal{G} = P2_12_12$  $D_2^3$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$		
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$					
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P2_12_12$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p2_12_12$ $p112$	L21 L03	
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$		$P2_122_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p121$ $p2_111$ $p1$	L08 L09 L01
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$		$P22_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p211$ $p12_11$ $p1$	L08 L09 L01

Auxiliary tables for Laue class  $D_{2h} - mmm$ Centring types  $P$  and  $I$ 

Orientation orbit ( $hkl$ )	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
( $mn0$ )	$\mathbf{c}$	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$
( $\bar{m}n0$ )	$\mathbf{c}$	$n\mathbf{a} + m\mathbf{b}$	$-p\mathbf{a} + q\mathbf{b}$			
( $0mn$ )	$\mathbf{a}$	$n\mathbf{b} - m\mathbf{c}$	$p\mathbf{b} + q\mathbf{c}$	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$
( $0\bar{m}n$ )	$\mathbf{a}$	$n\mathbf{b} + m\mathbf{c}$	$-p\mathbf{b} + q\mathbf{c}$			
( $n0m$ )	$\mathbf{b}$	$nc - ma$	$pc + qa$	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$
( $n0\bar{m}$ )	$\mathbf{b}$	$nc + ma$	$-pc + qa$			

Arithmetic class  $222P$ 

Serial No.	16	17	18	19
Group type	$D_2^1$	$D_2^2$	$D_2^3$	$D_2^4$
Group	$P222$	$P222_1$	$P2_12_12$	$P2_12_12_1$
( $mn0$ )	$P112$	$P112_1$	$P112$	$P112_1$
( $\bar{m}n0$ )				( $\mathbf{a}/4$ )
( $0mn$ )		$P112$	$P112_1$	$P112_1$
( $0\bar{m}n$ )			( $\mathbf{b}/4$ )	( $\mathbf{b}/4$ )
( $n0m$ )		$P112$	$P112_1$	$P112_1$
( $n0\bar{m}$ )		( $\mathbf{c}/4$ )	( $\mathbf{a}/4$ )	( $\mathbf{c}/4$ )

Arithmetic class  $mm2P$ 

Serial No.	25	26	27	28	29	30	31	32	33	34
Group type	$C_{2v}^1$	$C_{2v}^2$	$C_{2v}^3$	$C_{2v}^4$	$C_{2v}^5$	$C_{2v}^6$	$C_{2v}^7$	$C_{2v}^8$	$C_{2v}^9$	$C_{2v}^{10}$
Group	$Pmm2$	$Pmc2_1$	$Pcc2$	$Pma2$	$Pca2_1$	$Pnc2$	$Pmn2_1$	$Pba2$	$Pna2_1$	$Pnm2$
( $mn0$ )	$P112$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$
( $\bar{m}n0$ )							( $\mathbf{a}/4$ )			
( $0mn$ )	$P11m$	$P11m$	$P11b$	$P11m$	$P11b$	$P11n$	$P11m$	$P11a$	$P11n$	$P11n$
( $0\bar{m}n$ )				( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )			( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )
( $n0m$ )		$P11a$	$P11a$	$P11b$	$P11b$	$P11a$	$P11n$	$P11b$	$P11b$	$P11n$
( $n0\bar{m}$ )						( $\mathbf{b}/4$ )		( $\mathbf{b}/4$ )	( $\mathbf{b}/4$ )	( $\mathbf{b}/4$ )

Arithmetic classes  $222I$ ,  $mm2I$  and  $mmmI$ 

Serial No.	23	24	44	45	46	71	72	73	74
Group type	$D_2^8$	$D_{2v}^9$	$C_{2v}^{20}$	$C_{2v}^{21}$	$C_{2v}^{22}$	$D_{2h}^{25}$	$D_{2h}^{26}$	$D_{2h}^{27}$	$D_{2h}^{28}$
Group	$I222$	$I2_12_12_1$	$Imm2$	$Iba2$	$Ima2$	$Immm$	$Ibam$	$Ibca$	$Imma$
( $mn0$ )	$I112$	$I112$	$I112$	$I112$	$I112$	$I112/m$	$I112/m$	$I112/b$	$I112/b$
( $\bar{m}n0$ )		( $\mathbf{b}/4$ )							
( $0mn$ )		$I112$	$I11m$	$I11b$	$I11m$		$I112/b$		$I112/m$
( $0\bar{m}n$ )		( $\mathbf{c}/4$ )			( $\mathbf{a}/4$ )				
( $n0m$ )		$I112$		$I11a$	$I11b$		$I112/a$		$I112/m$
( $n0\bar{m}$ )		( $\mathbf{a}/4$ )							$[(\mathbf{a} + \mathbf{b} + \mathbf{c})/4]$