No. 54 *Pcca* D_{2h}^{8}

$$\mathcal{G} = P\frac{2_1}{c}\frac{2}{c}\frac{2}{a}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	*Pcca*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/a$	L07
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_122$ $(\mathbf{a}/4)$	L20
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p112$ $(\mathbf{a}/4)$	L03
(100)	**b**	**c**	**a**	*Pbcb*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2/b11$	L16
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pb2b$	L30
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pb11$	L12
(010)	**c**	**a**	**b**	*Pbaa*	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$pbaa$	L43
					$[s\mathbf{d}, -s\mathbf{d}]$	$pba2$ $(\mathbf{a}'/4)$	L25

No. 55 *Pbam* D_{2h}^{9}

$$\mathcal{G} = P\frac{2_1}{b}\frac{2_1}{a}\frac{2}{m}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	*Pbam*	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$pbam$	L44
					$[s\mathbf{d}, -s\mathbf{d}]$	$pba2$	L25
(100)	**b**	**c**	**a**	*Pcma*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12/m1$	L14
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_1ma$	L28
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p1m1$	L11
(010)	**c**	**a**	**b**	*Pmcb*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2/m11$	L14
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pm2_1b$	L28
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pm11$	L11

No. 56 *Pccn* D_{2h}^{10}

$$\mathcal{G} = P\frac{2_1}{c}\frac{2_1}{c}\frac{2}{n}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	*Pccn*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/n$	L07
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_12_12$ $[(\mathbf{a}+\mathbf{b})/4]$	L21
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p112$ $[(\mathbf{a}+\mathbf{b})/4]$	L03
(100)	**b**	**c**	**a**	*Pbnb*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_1/b11$	L17
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pb2b$ $(\mathbf{a}'/4)$	L30
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pb11$ $(\mathbf{a}'/4)$	L12
(010)	**c**	**a**	**b**	*Pnaa*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12_1/a1$	L17
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2aa$ $(\mathbf{b}'/4)$	L30
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p1a1$ $(\mathbf{b}'/4)$	L12

Auxiliary tables for Laue class D_{2h} – *mmm*

Centring types *P* and *I*

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

Arithmetic class 222*P*

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

Arithmetic class *mm*2*P*

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	$Pmm2$	$Pmc2_1$	$Pcc2$	$Pma2$	$Pca2_1$	$Pnc2$	$Pmn2_1$	$Pba2$	$Pna2_1$	$Pnn2$
$(mn0)$ $(\overline{m}n0)$	$P112$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$	$P112_1$ $(\mathbf{a}/4)$	$P112$	$P112_1$	$P112$
$(0mn)$ $(0\overline{m}n)$	$P11m$	$P11m$	$P11b$	$P11m$ $(\mathbf{a}/4)$	$P11b$ $(\mathbf{a}/4)$	$P11n$	$P11m$	$P11a$ $(\mathbf{a}/4)$	$P11n$ $(\mathbf{a}/4)$	$P11n$ $(\mathbf{a}/4)$
$(n0m)$ $(n0\overline{m})$		$P11a$	$P11a$	$P11b$	$P11b$	$P11a$ $(\mathbf{b}/4)$	$P11n$	$P11b$ $(\mathbf{b}/4)$	$P11b$ $(\mathbf{b}/4)$	$P11n$ $(\mathbf{b}/4)$

Arithmetic classes 222*I*, *mm*2*I* 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	$I222$	$I2_12_12_1$	$Imm2$	$Iba2$	$Ima2$	$Immm$	$Ibam$	$Ibca$	$Imma$
$(mn0)$ $(\overline{m}n0)$	$I112$	$I112$ $(\mathbf{b}/4)$	$I112$	$I112$	$I112$	$I112/m$	$I112/m$	$I112/b$	$I112/b$
$(0mn)$ $(0\overline{m}n)$		$I112$ $(\mathbf{c}/4)$	$I11m$	$I11b$	$I11m$ $(\mathbf{a}/4)$		$I112/b$		$I112/m$
$(n0m)$ $(n0\overline{m})$		$I112$ $(\mathbf{a}/4)$		$I11a$	$I11b$		$I112/a$		$I112/m$ $[(\mathbf{a}+\mathbf{b}+\mathbf{c})/4]$

Arithmetic class *mmmP*

Serial No. Group type Group	47 D_{2h}^{1} *Pmmm*	48 D_{2h}^{2} *Pnnn*		49 D_{2h}^{3} *Pccm*	50 D_{2h}^{4} *Pban*	
		Origin 1	Origin 2		Origin 1	Origin 2
$(mn0)$ $(\overline{m}n0)$	$P112/m$	$P112/n$ $[(\mathbf{a}+\mathbf{b}+\mathbf{c})/4]$	$P112/n$	$P112/m$	$P112/n$ $[(\mathbf{a}+\mathbf{b})/4]$	$P112/n$
$(0mn)$ $(0\overline{m}n)$				$P112/b$	$P112/a$ $[(\mathbf{a}+\mathbf{b})/4]$	$P112/a$
$(n0m)$ $(n0\overline{m})$				$P112/a$	$P112/b$ $[(\mathbf{a}+\mathbf{b})/4]$	$P112/b$

Serial No. Group type Group	51 D_{2h}^{5} *Pmma*	52 D_{2h}^{6} *Pnna*	53 D_{2h}^{7} *Pmna*	54 D_{2h}^{8} *Pcca*	55 D_{2h}^{9} *Pbam*	56 D_{2h}^{10} *Pccn*
$(mn0)$ $(\overline{m}n0)$	$P112/a$	$P112/a$	$P112_1/a$	$P112/a$	$P112/m$	$P112/n$
$(0mn)$ $(0\overline{m}n)$	$P112_1/m$	$P112/n$	$P112/m$	$P112_1/b$	$P112_1/a$	$P112_1/b$
$(n0m)$ $(n0\overline{m})$	$P112/m$	$P112_1/n$	$P112/n$	$P112/a$	$P112_1/b$	$P112_1/a$

Serial No. Group type Group	57 D_{2h}^{11} *Pbcm*	58 D_{2h}^{12} *Pnnm*	59 D_{2h}^{13} *Pmmn*		60 D_{2h}^{14} *Pbcn*	61 D_{2h}^{15} *Pbca*	62 D_{2h}^{16} *Pnma*
			Origin 1	Origin 2			
$(mn0)$ $(\overline{m}n0)$	$P112_1/m$	$P112/m$	$P112/n$ $[(\mathbf{a}+\mathbf{b})/4]$	$P112/n$	$P112_1/n$	$P112_1/a$	$P112_1/a$
$(0mn)$ $(0\overline{m}n)$	$P112/a$	$P112_1/n$	$P112_1/m$ $[(\mathbf{a}+\mathbf{b})/4]$	$P112_1/m$	$P112_1/a$		$P112_1/n$
$(n0m)$ $(n0\overline{m})$	$P112_1/a$				$P112/a$		$P112_1/m$

Centring type *C*

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Auxiliary basis of the scanning group $\widehat{\mathbf{a}}$	$\widehat{\mathbf{b}}$	$\widehat{\mathbf{c}}$
$(hk0)$ $(\overline{h}k0)$	$\mathbf{c}$ $\mathbf{c}$	$n\widehat{\mathbf{a}}-m\widehat{\mathbf{b}}$ $n\widehat{\mathbf{a}}+m\widehat{\mathbf{b}}$	$p\widehat{\mathbf{a}}+q\widehat{\mathbf{b}}$ $-p\widehat{\mathbf{a}}+q\widehat{\mathbf{b}}$	$(\mathbf{a}-\mathbf{b})/2$	$(\mathbf{a}+\mathbf{b})/2$	$\mathbf{c}$
h even, k odd or h odd, k even $\Rightarrow n=h+k, m=h-k$ h, k odd $\Rightarrow n=(h+k)/2, m=(h-k)/2$						
$(0mn)$ $(0\overline{m}n)$	$\mathbf{a}$ $\mathbf{a}$	$n\mathbf{b}-m\mathbf{c}$ $n\mathbf{b}+m\mathbf{c}$	$p\mathbf{b}+q\mathbf{c}$ $-p\mathbf{b}+q\mathbf{c}$	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$
$(n0m)$ $(n0\overline{m})$	$\mathbf{b}$ $\mathbf{b}$	$n\mathbf{c}-m\mathbf{a}$ $n\mathbf{c}+m\mathbf{a}$	$p\mathbf{c}+q\mathbf{a}$ $-p\mathbf{c}+q\mathbf{a}$	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$