

Orthorhombic

6. SCANNING TABLES

 Laue class $D_{2h} - mmm$

 No. 23 $I222$
 $\mathcal{G} = I222$
 D_2^8

| Orientation orbit (<i>hkl</i>) | Conventional basis of the scanning group | | | Scanning group \mathcal{H} | Linear orbit sd | Sectional layer group $\mathcal{L}(sd)$ | |
|-------------------------------------|---|-----------|----------|------------------------------------|--|---|-----|
| | a' | b' | d | | | | |
| (001) | a | b | c | $I222$ | $[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ | $p222$ | L19 |
| (100) | b | c | a | | $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ | $p2_12_12$ | L21 |
| (010) | c | a | b | | $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$ | $p112$ | L03 |

 No. 24 $I2_12_12_1$
 $\mathcal{G} = I2_12_12_1$
 D_2^9

| Orientation orbit (<i>hkl</i>) | Conventional basis of the scanning group | | | Scanning group \mathcal{H} | Linear orbit sd | Sectional layer group $\mathcal{L}(sd)$ | |
|-------------------------------------|---|-----------|----------|------------------------------------|--|---|-----|
| | a' | b' | d | | | | |
| (001) | a | b | c | $I2_12_12_1$ | $[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ | $p2_122$ (b' /4) | L20 |
| (100) | b | c | a | | $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ | $p22_12$ (b' /4) | L20 |
| (010) | c | a | b | | $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$ | $p112$ (b' /4) | L03 |

 Geometric class $C_{2v} - mm2$

 No. 25 $Pmm2$
 $\mathcal{G} = Pmm2$
 C_{2v}^1

| Orientation orbit (<i>hkl</i>) | Conventional basis of the scanning group | | | Scanning group \mathcal{H} | Linear orbit sd | Sectional layer group $\mathcal{L}(sd)$ | |
|-------------------------------------|---|-----------|----------|------------------------------------|---|---|------------|
| | a' | b' | d | | | | |
| (001) | a | b | c | $Pmm2$ | sd | $pmm2$ | L23 |
| (100) | b | c | a | $Pm2m$ | $0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$ | $pm2m$ $pm11$ | L27 L11 |
| (010) | c | a | b | $P2mm$ | $0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$ | $p2mm$ $p1m1$ | L27 L11 |

 No. 26 $Pmc2_1$
 $\mathcal{G} = Pmc2_1$
 C_{2v}^2

| Orientation orbit (<i>hkl</i>) | Conventional basis of the scanning group | | | Scanning group \mathcal{H} | Linear orbit sd | Sectional layer group $\mathcal{L}(sd)$ | |
|-------------------------------------|---|-----------|----------|------------------------------------|---|---|------------|
| | a' | b' | d | | | | |
| (001) | a | b | c | $Pmc2_1$ | $[s\mathbf{d}, (s + \frac{1}{2})\mathbf{d}]$ | $pm11$ | L11 |
| (100) | b | c | a | $Pb2_1m$ | $0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$ | $pb2_1m$ $pb11$ | L29 L12 |
| (010) | c | a | b | $P2_1ma$ | $0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$ | $p2_1ma$ $p1m1$ | L28 L11 |

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

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 | $I222$ | $I2_12_12_1$ | $Imm2$ | $Iba2$ | $Ima2$ | $Immm$ | $Ibam$ | $Ibca$ | $Imma$ | | |
| ($mn0$) | $I112$ | $I112$ | $I112$ | $I112$ | $I112$ | $I112/m$ | $I112/m$ | $I112/b$ | $I112/b$ | | |
| ($\bar{m}n0$) | | ($\mathbf{b}/4$) | | | | | | | | | |
| ($0mn$) | | $I112$ | $I11m$ | $I11b$ | $I11m$ | | | | $I112/b$ | | $I112/m$ |
| ($0\bar{m}n$) | | ($\mathbf{c}/4$) | | | | | ($\mathbf{a}/4$) | | | | |
| ($n0m$) | | $I112$ | $I11a$ | $I11b$ | | $I112/a$ | | $I112/m$ | | | |
| ($n0\bar{m}$) | | ($\mathbf{a}/4$) | | | | | | ($\mathbf{a} + \mathbf{b} + \mathbf{c}/4$) | | | |